

"Vaccinia Virus Strains"

SEQ ID NOs:4-472 (even numbers) are the following amino acid sequences, which are encoded by the indicated regions of the nucleotide sequence set forth below (SEQ ID NO:2). The nucleotide sequences within SEQ ID NO:2 that correspond to SEQ ID NOs:4-472 (even numbers) are 3-471 (odd numbers), respectively.

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FEATURES                      Location/Qualifiers
    source                    1..199234
                              /organism="Vaccinia virus"
    gene                      complement(577..1302)
                              /gene="VACA2K001"
    CDS                       complement(577..1302)
                              /gene="VACA2K001"
                              /function="[ITR] chemokine-binding protein: host
defense
                              modulator"
                              /note="similar to VACWR001/218, VACCP-C23L/B29R"
                              /codon_start=1
/translation="MHVPASLQQSSSSCTEEENKHHMGIDVVIKVTQDQPTPTNDKIC
QSVTEITESESDPDPEVESEDDSTSVEDVDPPTYYSIIGGGLRMNFGFTKCPQIKSI
SESADGNTVNARLSSVSPGQKDSIPAITHHEALAMIKDCEVSDIRCSEEEKDSDIKT
HPVLGSNISHKKVSYEDIIGSTIVDTKCVKNLEFSVRIGDMCKESSELEVKGDFKYVD
GSASEGATDDTSLIDSTKLKACV"
    gene                      complement(1706..2146)
                              /gene="VACA2K002"
    CDS                       complement(1706..2146)
                              /gene="VACA2K002"
                              /function="[ITR] gene fragment, TNF-alpha-
receptor-like:
                              host defense modulator"
                              /note="similar to VACWR002/217, VARBSH-G2R/203"
                              /codon_start=1
/translation="MRSCNTTHNRICECSPGYICLLKGSSGCKACVSQTKCGIGYGV
GDVICSPCGLGTYSHTVSSADKCEPVPRTNFYIDVEINLYPVNDTSCSTRTTTTGLSE
SISTSELTTITMNHKDCDPVFRDGYFVSLNKVATSGFFTGERCAL"
    gene                      complement(2029..2397)
                              /gene="VACA2K003"
    CDS                       complement(2029..2397)
                              /gene="VACA2K003"
                              /function="[ITR] gene fragment, TNF-alpha-
receptor-like:
                              host defense modulator"
                              /note="similar to VACWR004/215, VACCP-C22L/B28R,
VARBSH-G2R/203"
                              /codon_start=1
/translation="MKSVLYSYILFLSCIIINGRDIAPHAPSDGKCKDNEYKRHNLC
PTYASRLCDSKTNQCTPCGSGTFTSRNNHLPACLSNCRCDRVTLLTIESVNALPDI
IVFSKDHPDARHVFQKQVVE"
    gene                      complement(2761..3096)
                              /gene="VACA2K004"
    CDS                       complement(2761..3096)
                              /gene="VACA2K004"
                              /function="[ITR] gene fragment, ankyrin-like"
                              /note="similar to VACWR006/213, VACCP-C21L/B27R"
                              /codon_start=1

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/translation="MLPHTSDTTSTFRLKTVFDLVFENRNIIYKADVNDIIHHRLKV
PMIKSLFYKMSEFSPYDDYYVKILAYCLLRDESFAELHSKFCLNEDYKSVFMKNISF
DKIDSIIVT"
    gene                complement (3029..3415)
                        /gene="VACA2K005"
    CDS                  complement (3029..3415)
                        /gene="VACA2K005"
                        /function="[ITR] gene fragment, ankyrin-like"
                        /note="similar to VACWR007/212, VACCP-C20L/B26R"
                        /codon_start=1

/translation="MEQTLTPLHTYLQQYTKHSPRVVYALLSRGYVILIVHPSWNC
ATGHILIMLLNWHEQKEEGQHLLYLFIKHNQGYTLNILRYLLDRFDIQKDEYYNTAFQ
NCNNNVASYIGYDINLPTKDGIRLG"
    gene                complement (3665..4078)
                        /gene="VACA2K006"
    CDS                  complement (3665..4078)
                        /gene="VACA2K006"
                        /function="[ITR] gene fragment, ankyrin-like"
                        /note="similar to VACWR008/211, VACCP-C19L/B25R"
                        /codon_start=1

/translation="MSRINITKKIYCSVFFHIFNYEKNHYEMDEIVRIVRDSMWYIP
NVFMDDGKNEGHSVNNVCHMYFTFFDVTSSHLFKLVIKHCDLNKRGNSPLHCYTMN
TRFNPSVLKILLHHGMRNFDSKDDHYQSITRSLIY"
    gene                complement (4320..4916)
                        /gene="VACA2K007"
    CDS                  complement (4320..4916)
                        /gene="VACA2K007"
                        /function="[ITR] gene fragment, ankyrin-like"
                        /note="similar to VACCP-C18L/B24R"
                        /codon_start=1

/translation="MYGLILSRFNNCGYHCYETILIDVFDILSKYMDNIDMIDNENKT
LLYYAVDVNNIQFAKRLLEYGASVTTSRSIINTAIQKSSYRRENKTKLVDLLLSYHPT
LETMIDAFNRDIRYLYPEPLFACIRYALIIDDDFPSKVKYDIAGRHKELKRYRVDINR
MKNAYISGVSMFDILFKRSKRHRLRYAKNPTSNGTKKN"
    gene                complement (5010..6158)
                        /gene="VACA2K008"
    CDS                  complement (5010..6158)
                        /gene="VACA2K008"
                        /function="[ITR] gene fragment, ankyrin-like"
                        /note="similar to VACCP-C17L/B23R"
                        /codon_start=1

/translation="MIAFIIFREIGIISTRIAMDCTCILCRLLDEDVTYKKIKLEIET
CHNLSKHIDRRGNALHCYVFNKCDTDIKIVRLLLSRGVERLCRNNEGLTPLGVYSKH
RYVKSQIVHLLISSYSNSSNELKSNINDFDLYSDNIDLRLKYLIVDKRIRPSKNTNY
AINGLGLVDIYVTPNPRPEVLLWLLKSECYSTGYVFRTCMYNSDMCKNSLHYYISSH
RESQSLSKDVIKCLINNNVSIHGRDEGSLPIQYYWSFSTIDIEIVKLLLIKDVDTCTC
VYDVSPILEAYYLNKRFRVTPYNVDMEIVNLLIERRHTLVDVMRSITSYDSREYNHYI
IDNILKRFRQQDESIVQAMLINYLHYGDMVVRMLDNGQQLSSARLLC"
    gene                complement (6205..6750)
                        /gene="VACA2K009"
    CDS                  complement (6205..6750)
                        /gene="VACA2K009"

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        /function="[ITR] unknown"
        /note="similar to VACCP-C16L/B22R"
        /codon_start=1

/translation="MISLSFLIHNPLKKWKLKPSISINGYRSTFTMAFPQAQFRPCHC
HATKDSLNTVADVVRHCLTEYILWVSHRWTHRETAGPLYRLLISFRDATELFGGELKD
SLPWDNIDNCVEIICKFIRNDSMKTAEEELRAIIGLCTQSAIVSGRVFNDKYIDILLML
RKILNENDYLTLLDHIRTAKY"
        gene                complement (7086..7355)
                           /gene="VACA2K010"
        CDS                complement (7086..7355)
                           /gene="VACA2K010"
                           /function="[ITR] unknown"
                           /note="similar to VACCP-C15L/B21R"
                           /codon_start=1

/translation="MSLESFIITTFNNNSSTNIDNMCHLYVKVCPSSLLFRLFVECCD
INKLVEGTTPLHCYLMNEGFESSVLKNLLKEYVMTVMVTFHYTNI"
        gene                complement (7766..7921)
                           /gene="VACA2K011"
        CDS                complement (7766..7921)
                           /gene="VACA2K011"
                           /function="[ITR] gene fragment, unknown"
                           /note="similar to CPXVBR-V223, VARBSH-B22R/200"
                           /codon_start=1

/translation="MNLQKLSLAIYLTATCSWCYETCIRKTALYHDIQLEHVEDNKDS
VASLPYK"
        gene                complement (8173..8745)
                           /gene="VACA2K012"
        CDS                complement (8173..8745)
                           /gene="VACA2K012"
                           /function="[ITR] unknown"
                           /note="similar to VACWR206, VACCP-C14L"
                           /codon_start=1

/translation="MMIYGLIACLI FVTSSIASPLYIPVIPITEDKSFNSVEVLVSL
FRDDQKDYTVTSQFNNTIDTKDWTIGVLSTPDGLDIPLTNITYWSRFTIGRALFKSE
SEDIFQKKMSILGVSIECKKSSLLTFLTVRKMTRVFNKFPDMAYYRGDCLKAVYVTM
TYKNTKTGETDYTYLSNGGLPAYYRNGVDG"
        gene                complement (8901..9974)
                           /gene="VACA2K013"
        CDS                complement (8901..9974)
                           /gene="VACA2K013"
                           /function="[ITR] serine protease inhibitor-like

SPI-1:
        host defense modulator"
        /note="similar to VACWR205, VACCP-C12L"
        /codon_start=1

/translation="MDIFKELIVKHPDENVLISPVSI LSTLSILNHGAAGSTAEQLSK
YIENMNENTPDDKKDDNMDVDIPYCATLATANKIYGSDSIEFHASFLQKIKDDFQT
VNFNNANQTKELINEWVKMTMTNGKINSLTSPLSINTRMTVVSAVHFAMWKYPFSKH
LTYTDKFYISKNIIVTSVDMVGTENNQLQYVHINELFGGFSIIDIPYEGNSSMVIILPD
DIEGIYNIENITDEKFKKWCGLSTKSIDLYMPKFKVEMTEPYNLVPILNGLTNI
FGYYADFSKMCNETITVEKFLHTTFIDVNEEYTEASAVTGVMFNFSMVYRTKVYINH
PFMYMIKDNTGRILFIGKYCYPQ"

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gene          10397..10816
              /gene="VACA2K014"
CDS           10397..10816
              /gene="VACA2K014"
              /function="[ITR] secreted epidermal growth factor-
like:
              binds EGF receptor"
              /note="similar to VACWR009/210, VACCP-C11R"
              /codon_start=1

/translation="MSMKYLMLLFAAMIIRSFDASGNAIETTLPEITNATTDIPAIRL
CGPEGDGYCLHGDCIHARDIDGMYCRCSHGYTGIRCQHVVLVDYQRSEKPNTTTSYIP
SPGIMLVLVGIIIMCCLLSVYRFRTRTKLPLQDMVVP"
gene          complement(10969..11964)
              /gene="VACA2K015"
CDS           complement(10969..11964)
              /gene="VACA2K015"
              /function="[ITR] unknown"
              /note="similar to VACWR010/209, VACCP-C10L"
              /codon_start=1

/translation="MDIYDDKGLQTIKLFNNEFDCIRNDIRELFKHVTDSDSIQLPME
DNSDIIENIRKILYRRLKNVECVDIDNTITFMKYDPNDDNKRTCSNWVPLTNNYMEYC
LVIYLETPICGGKIKLYHPTGNIKSDKDIMFAKTLDFKSKKVLTKRKTIAVLDISVSY
NRSITTIHYNDVDIDIHTDKNGKELCYCYITIDDHYLVDVETIGVIVNRSGKCLLVN
NHLGIGIVKDKRISDSFGDVCMdTIFDFSEARELFSLTNDDNRNIAWDTDKLDDDTDI
WTPVTEDDYKFLSRLVLYAKSQSDTVFDYYVLTGDTPEPTVFIFKVTRFYFNMLK"
gene          12572..12823
              /gene="VACA2K016"
CDS           12572..12823
              /gene="VACA2K016"
              /function="[ITR] gene fragment, zinc finger-like:
              apoptosis: host defense modulator"
              /note="similar to VACWR011/208, 242aaVARBSH-
D6R/005"
              /codon_start=1

/translation="MHYPKYIINITKINPHLANQFRAWKKRIAGRDYMTNLSRDTGIQ
QSKLTETIRNCQKNRNIYGLYIHYNLVINWITDVIINQY"
gene          12968..13156
              /gene="VACA2K017"
CDS           12968..13156
              /gene="VACA2K017"
              /function="[ITR] gene fragment, zinc finger-like:
              apoptosis: host defense modulator"
              /note="similar to VACWR012/207, 242aa VARBS-
D6R/005"
              /codon_start=1

/translation="MKLFTQNDRYFGLLDSCNHIFCITCINIWHKTRRETGASDNCPI
CRTRFRNITMSKFYKLVN"
gene          complement(13325..13699)
              /gene="VACA2K018"
CDS           complement(13325..13699)
              /gene="VACA2K018"
              /function="[ITR] interleukin-18-binding protein:
host

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defense modulator: absent from VACCP"
/note="similar to VACWR013/VARBSH-D7L/006"
/codon_start=1

/translation="MRILFLIAFMYGCVHPYVNADEIKCPNLNIVTSSGFRCTGCVK
FMPNFSYMYWLAKDMRSDTKFIEHLGDKIEKETVRTIDGRIVTLQKVLHVTDTNK
FAHYRFTCVLTTIDGIYKKNVC"
gene complement(13758..14030)
/gene="VACA2K019"
CDS complement(13758..14030)
/gene="VACA2K019"
/function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
host-range"
/note="similar to VACWR014, CPXVBR-V024"
/codon_start=1

/translation="MKKIMVGGNTMFSLIFTDHGAKIIHRYANNPELREYYELKQNKI
YVEAYDIISNAIVKHDRIHKTIESVDDNTYISNLPYTIKYKIFEQQ"
gene complement(14043..14471)
/gene="VACA2K020"
CDS complement(14043..14471)
/gene="VACA2K020"
/function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
host-range"
/note="similar to VACWR014, CPXVBR-V024"
/codon_start=1

/translation="MSYACPILSTINICLPYLKDINMIDKRGETLLHKAVRYNKQSLV
SLLLESGSDVNIRSNNGYTICIAIAINESKNIELLKMLLCHKPTLDYVIDSLREISNIV
DNYYAIKQCIKYAMIIDDCTSSKIPESISQRYNDYIDLNC"
gene complement(14560..14967)
/gene="VACA2K021"
CDS complement(14560..14967)
/gene="VACA2K021"
/function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
host-range"
/note="similar to VACWR015, CPXVBR-V024"
/codon_start=1

/translation="MKGIDNTAYSIDDLTCCTRGIMADYLNSDYRYNKDVDLVKLFL
ENGKPHGIMCSIVPLWRNDKETIFLILKTMNSDVLQHILIEYMTFGDIPLVEYGTVVN
KEAIGHGYFRNINIDSYTMKYLLKKEGRCHQLSR"
gene complement(15216..15449)
/gene="VACA2K022"
CDS complement(15216..15449)
/gene="VACA2K022"
/function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
host-range"
/note="similar to VACWR016, CPXVBR-V024"
/codon_start=1

/translation="MLKLKDIAMALLEATGFSNINDFNIFSYMKSQNVVDVLIKVLVE
HGFDLSVKCENHRSVIENYVMTMILFLKLLICS"

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gene      complement (15471..15686)
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CDS       complement (15471..15686)
          /gene="VACA2K023"
          /function="[ITR] gene fragment, ankyrin-like 77kDa"
cowpox
          host-range"
          /note="similar to VACWR017, CPXVBR-V024"
          /codon_start=1

/translation="MFDYLENEEVALDELKQMLRDRDPNDTRNQFKNNALHAYLFNEH
CNNVEVVKLLLDSTNPLRKNWRQLPH"
gene      complement (15790..15957)
          /gene="VACA2K024"
CDS       complement (15790..15957)
          /gene="VACA2K024"
          /function="[ITR] unknown"
          /note="similar to VACWR018"
          /codon_start=1

/translation="MSSKGGSGGMWSVFIHGHGDSNKGSKTYTSGGGGMWGGGSSSGV
NGGVKSGTGKI"
gene      complement (16130..18034)
          /gene="VACA2K025"
CDS       complement (16130..18034)
          /gene="VACA2K025"
          /function="[ITR] ankyrin-like"
          /note="similar to VACWR019, VACCP-C9L"
          /codon_start=1

/translation="MVNDKILYDSCKTFNIDASSAQSLIESGANPLYEYDGETPLKAY
VTKKNNNIKNDVVILLSSVDYKNINDFDIFEYLCSDNIDIDLLKLLISKGIEINSIK
NGINIVEKYATTSNPNVDVFKLLLDKGIPTCSNIQYGYKIKIEQIRRAGEYYNWDEL
DDYDYDYTTDYDDRMGKTVLYYYYIITRSQDGYATSLDVINYILISHEKEMRYITYREHT
TLYYYLDKCDIKREIFDALFDSNYSGHELMNILSNYLKQFRKKNHKIDNYIVDQLLF
DRDTFYILELCNSLRNNILISTILKRYTDSIQDLLLEYVSYHTVYINVIKCMIDEGAT
LYRFKHINKYFQKFGNRDPKVVEYILKNGNLVNNDDNLDNINIMPLFPPTFSMRELDV
LSILKLCKPYINDINKIDKHGCSILYHCISHSVSLVEWLIDNGTDINIITKYGFTCI
TICVILADKYIPEIAELYIKILEIILSKLPTIECIKKTVDYLDHRYLFIGGNNKSLL
KICIKYFILVDYKYTCMYPYSYIEFITDCEKEIADMRQIKINGTDMITVMYMLNKPTK
KRYVNNPIFTDWANKQYKFYNQIIYNANKLIEQSKKIDDMIEEVSIDNRLSTLPLEI
RHLIFSAYAFI"
gene      complement (18077..18610)
          /gene="VACA2K026"
CDS       complement (18077..18610)
          /gene="VACA2K026"
          /function="[ITR] unknown"
          /note="similar to VACWR020, VACCP-C8L"
          /codon_start=1

/translation="MSAIRFIACLYLISIFGNCHEDPYYQPFDKLNLITLDIYTYEDLV
PYTVDNDTTSFVKIYFKKFWITVMTKWCAPIFIDTVSVYTSHDNLNIQFYSRDEYDTQS
EDKICTIDVKARCKHLTKREVTVQQEAYRYSLSDDLSCFDSIDLEIDLITNSTDTTV
LKSVELMLPKRAKSIHN"
gene      complement (18682..19134)
          /gene="VACA2K027"
CDS       complement (18682..19134)

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        /gene="VACA2K027"
        /function="host-range: possible host defense
modulator"

        /note="similar to VACWR021, VACCP-C7L"
        /codon_start=1

/translation="MGIQHEFDIIINGDIALRNLQLHKGDNYGCKLKIISNDYKKLKF
RFIIRPDWSEIDEVKGLTVFANNYAVKVNKVDFTFYVIYEAVIHLNKKTEILIIYSD
DENELFKHYYPYISLNMISKKYKVKEENYSSPYIEHPLIPYRDYESMD"
    gene        complement(19363..19818)
                /gene="VACA2K028"
    CDS        complement(19363..19818)
                /gene="VACA2K028"
                /function="unknown"
                /note="similar to VACWR022, VACCP-C6L"
                /codon_start=1

/translation="MNAYNKADSFSLESDSIKDVIHDYICWLSMTDEMRRPSIGNVFKA
METFKIDAVRYDGNIDYDLAKDINAMSFDSFIRSLQNISSKKDKLTVYGTMGLLSIVV
DINKGCDISNIKFAAGIIILMEYIFDDTDLSHLKVALYRRIQRRDDVDR"
    gene        complement(19937..20551)
                /gene="VACA2K029"
    CDS        complement(19937..20551)
                /gene="VACA2K029"
                /function="unknown"
                /note="similar to VACWR023, VACCP-C5L"
                /codon_start=1

/translation="MAYMNRSDLDKLBHENIFSGNIIEDAKEFVFGSRKIYTDSVDDL
IELYSLAKYLNENLKDVIERMDYVCKYIGKDNWSTIYSFYKENGLRNSFLRQYINN
NIEEICNTDQFLKLDVDSVCDILDNDEIVVTREYITILNMVLRWLENKRVNIDDFTKVM
FVIRFKFITYSELTAIEKIAPEYRQCLQDLYHMKITRPRHFDN"
    gene        complement(20614..20802)
                /gene="VACA2K030"
    CDS        complement(20614..20802)
                /gene="VACA2K030"
                /function="gene fragment, unknown"
                /note="similar to VACWR024, VACCP-C4L"
                /codon_start=1

/translation="MESGNNTWIPKTDDEYKFLSKLMNIAKFNNTKFDYYVLVGDTDP
CTVFTFKVTKYYINLNYE"
    gene        complement(20789..21199)
                /gene="VACA2K031"
    CDS        complement(20789..21199)
                /gene="VACA2K031"
                /function="gene fragment, unknown"
                /note="similar to VACWR024, VACCP-C4L"
                /codon_start=1

/translation="MFSKSLNFRFENVKRDKLVKCSISLTYKPSICRIQYDNNKYLD
ISDSQECNNICYCVITMDPHHLIDLETICVLVDKSGKCLLVNEFYIRFRKNHIYNSFT
DLCMDYIFELPNTKELFTLRNDDGRNIAWDNGKW"
    gene        complement(21368..21547)
                /gene="VACA2K032"
    CDS        complement(21368..21547)
                /gene="VACA2K032"

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        /function="gene fragment, unknown"
        /note="similar to VACWR024, VACCP-C4L"
        /codon_start=1

/translation="MDTIKIFNHGEFDTIRNELVNLLKVVKWNTINSNVTVSSTDITIN
ISERYYTNSLKMYPEI"
    gene                complement(21614..22405)
                        /gene="VACA2K033"
    CDS                  complement(21614..22405)
                        /gene="VACA2K033"
                        /function="secreted complement binding [C3b/C4b]:
host                    defense modulator"
                        /note="similar to VACWR025, VACCP-C3L"
                        /codon_start=1

/translation="MKVESVTFLTLLGIGCVLSCCTIPSRPINMKFKNSVETDANANY
NIGDTIEYLCPLGYRKQKMGPIYAKCTGTGWTLFNQCIKRRCPSPRDIDNGQLDIGGV
DFGSSITYSCNSGYHLIGESKSYCELGSTGSMVWNPEAPICESVKCQSPPSISNGRHN
GYEDFYTDGSSVVTYSCNSGYSLIGNSGVLCGGESDPPTCQIVKCPHPTISNGYLSS
GFKRSYSYNDNVDFKCKYGYKLSGSSSSTCSPGNTWQPELPCVR"
    gene                complement(22473..23993)
                        /gene="VACA2K034"
    CDS                  complement(22473..23993)
                        /gene="VACA2K034"
                        /function="kelch-like"
                        /note="similar to VACWR026, VACCP-C2L"
                        /codon_start=1

/translation="MESVIFSINGEIIQVNKEIITASPNFFKRIQEHINDEVIILN
GINYHAFESLLDYMWRKKINITINNEMILVAAVIDVTPVVDLCVKTMIHNNINSTNC
IRMFNFSKRYGIKKLYNASMSEIINNITAVTSDPEFGKLSKDELTTILSHEDVNVNHE
DVTAMILLKWIHKNPNDVDIINILHPKFMTNTRNAISLLGLTISKSTKPVTRNGIKH
NIVVIKNSDYISTITHYSPRTEYWTIVGNTDRQFYNNANVLHNCLYIIGGMNNRHHVYS
VSRVDLKTKKWKTVTNMSSLKSEVSTCVNDGKLYVIGGLEFSISTGVAEYLKHGTSKW
IRLPNLITPRYSGASVFNDDIYVMGGVYTTYEKYVVLNDVECFTKNRWIKKSPMPRH
HSIVYAVEYDGDYIVITGITHETRNLYKYIVKEDKWIELYMYFNHVGKMFVCSCGDY
ILIIADAKYEYYPKSNNTWNLFDMSTRNIEYYDMFTKDETHKSLPSFLSNCEKQFLQ"
    gene                complement(24063..24737)
                        /gene="VACA2K035"
    CDS                  complement(24063..24737)
                        /gene="VACA2K035"
                        /function="unknown"
                        /note="similar to VACWR027, VACCP-C1L"
                        /codon_start=1

/translation="MVKNNKISNSCRMIMSTNPNNILMRHLKNLTDDEFKCIHRSSD
FLYLSDRDYTSITKETLVSEIVEEYPDDCNKILAIIFLVLDKDIDVDIKTKLKPAPAV
RFAILDKMTEDIKLTDLVRHYFRYIEQDIPGLPLFKIDSyrTRAINKYSKELGLATE
YFNKYGHLMFYTLPIPYNRFFCRNSIGFLAVLSPTIGHVKAFYKFIEYVSIDRRKFK
KELMSK"
    gene                complement(24724..25077)
                        /gene="VACA2K036"
    CDS                  complement(24724..25077)
                        /gene="VACA2K036"
                        /function="virokine: host defense modulator"
                        /note="similar to VACWR028, VACCP-N1L"

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/codon_start=1

/translation="MRTLLIRYILWRNDNDQTYYNDDFKKLMLLDELVDGDVCTLIK
NMRMTLSGDGPLLDRLNQPVNNIEDAKRMIAISAKVARDIGERSEIRWEESFTILFRMI
ETYFDDLMDLYGEK"
    gene                complement (25196..25723)
                        /gene="VACA2K037"
    CDS                  complement (25196..25723)
                        /gene="VACA2K037"
                        /function="alpha-amanitin target"
                        /note="similar to VACWR029, VACCP-N2L"
                        /codon_start=1

/translation="MTSSAMDNNPEPKVLEMVYDATILPEGSSMDPNIIDCINRHINMC
IQRTYSSSIIAILDRFLT MNKDELNNTQCHIIKEFMTYEQMAIDHYGGYVNAILYQIR
KRPNQHHTIDLFFKKIKRTRYDTFKVDPVEFVKVIGFVSILNKYKPVYSYVLYENVLY
DEFKCFINYVETKYF"
    gene                complement (25765..27174)
                        /gene="VACA2K038"
    CDS                  complement (25765..27174)
                        /gene="VACA2K038"
                        /function="ankyrin-like"
                        /note="similar to VACWR030, VACCP-M1L"
                        /codon_start=1

/translation="MIFVIESKLLQIYRNRNRNINFYTTMDNIMSAEYYLSLYAKYNS
KNLDVFRNMLQAI EPGSN NYHILHAYCGIKGLDERFVEELLHRGYSPNETDDDGNYP L
HIASKINNRI VAMLLTHGADPNACDKHNKTPLY YLSGTDDEVIERINLLVQYGAKIN
NSVDEEGCGPLLACTDPSE RVFKKIMSIGFEARIVDKFGKNHIHRHMSDNPKASTIS
WMMKLGISPSKPDHDGNTPLHIVCSKT VKYVDIIDL LLPSTDVNKQNKFGDSPLTL LI
KTL SLAHLINKLLSTSNVITDQTVNICIF YDRDDVLEIINDKGKQYDFKMAVEVGSIR
CVKYL LDNDIICEDAMYYAVLSEYKTMVDYLLFNHFSVDSV VNGHTCMSECVRLNNPV
ILSKLMLHNPTSETMYLT MKAIEKDR LDKSIIIPFIAYFVLMHPDFCKNRRYFTSYKR
FVTDYVHEGVSYEVFDDYF"
    gene                complement (27152..27814)
                        /gene="VACA2K039"
    CDS                  complement (27152..27814)
                        /gene="VACA2K039"
                        /function="unknown"
                        /note="similar to VACWR031, VACCP-M2L"
                        /codon_start=1

/translation="MVYKLVLLFCIASLGYSVEYKNTICPPRQDYRYWYFAAELTIGV
NYDINSTIIGECHMSESYIDRNANIVLTGYGLEINMTIMDTDQRFVAAAEGVGKDNKL
SVLLFTTQRLDKVHHNISVTITCMEMNCGTTKYDSDL PESIHKSSSCDITINGSCVTC
VNLETDPTKINPHYLHPKDKYLYHNSEYGM RGSYGVT FIDELNQCLLDIKELSYDICY
RE"
    gene                complement (27949..28803)
                        /gene="VACA2K040"
    CDS                  complement (27949..28803)
                        /gene="VACA2K040"
                        /function="ankyrin-like: host-range"
                        /note="similar to VACWR032, VACCP-K1L"
                        /codon_start=1

/translation="MDLSRINTWKSQ LKSFLSSKDTFKADVHGHSALYYAIADNNVR
LVCTLLNAGALKN LLENEFPLHQAA TLEDTKIVKILLFSG LDDSQFDDKGNTALYYAV

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DSGNMQTVKLFVKKNWRLMFYGKTGWKTSFYHAVMLNDVSIVSYFLSEIPSTFDLAIL
 LSCIHITIKNGHVDMMILLDDYMTSTNTNNSLLFIPDIKLAIDNKDIEMLQALFKYDI
 NIYSANLENVLLDDAEIAKMIIEKHVEYKSDSYTKDLDIVKNNKLDEIISKNNKELRLM
 YVNCVKKN"

gene complement (29025..30134)
 /gene="VACA2K041"
 CDS complement (29025..30134)
 /gene="VACA2K041"
 /function="serine protease inhibitor-like: SPI-3,
 prevents syncytia: host range determinant: host defense
 modulator"
 /note="similar to VACWR033, VACCP-K2L"
 /codon_start=1

/translation="MIALLLSLTCSVSTYRLQGFTNAGIVAYKNIQDDNIVFSPFGY
 SFSMFMSLLPASGNTRIELLKTMDLRKRD LGPAFTELISGLAKLKT SKYTYTDLTYQS
 FVDNTVCIKPSYYQQYHRFGLYRLNFRDAVNKINSIVERRSGMSNVVDSNMLDNNTL
 WAIINTIYFKGIWQYPFDITKTRNASFTNKYGTCTVPMNNVTKLQGNITITIDDEEYD
 MVRLPYKDANISMYLAIGDNMTHFTDSITAAKLDYWSFQLGNKVYNLKLPRFSIENKR
 DIKSIAEMMAPSMFNPDNASFHMTDRDPLYIYKMFQNAKIDVDEQGTVAEASTIMVAT
 ARSSPEKLEFNTPFVFIIRHDITGFILFMGKVESP"

gene complement (30184..30450)
 /gene="VACA2K042"
 CDS complement (30184..30450)
 /gene="VACA2K042"
 /function="interferon resistance: host defense
 modulator"
 /note="similar to VACWR034, VACCP-K3L"
 /codon_start=1

/translation="MLAFCYSLPNAGDVIKGRVYENDYALYIYLFDPHF EAILAESV
 KMHMDRYVEYRDKLVGKTVKVKVIRVDYTKGYIDVNYKRMCRHQ"

gene complement (30502..31776)
 /gene="VACA2K043"
 CDS complement (30502..31776)
 /gene="VACA2K043"
 /function="phospholipase-D-like"
 /note="similar to VACWR035, VACCP-K4L"
 /codon_start=1

/translation="MNPDN TIAVITETIPIGMQFDKVYLSTFNMWREILSNTTKTLDI
 SSFYWSLSDEVGTNFGTII LNEIVQLPKRGVRVRVAVNKS NKPLKDVERLQ MAGVEVR
 YIDITNILGGVLHTKFWISDNTHIYLGSANMDWRS LTQVKELGIAIFNNRNLAADLTQ
 IFEVYWYLG VNNLPYNWKNFYPSYYNTDHPLSINVSGVPHSVFIASAPQQLCTMERTN
 DLTALLSCIRNASKFVYVSV MNFIPIIYSKAGKILFWPYIEDELRRSAIDRQVSVKLL
 ISCWQRSSFIMRNFLRSIAMLKSKNIDIEVKLFIVPDADPPIPYSRVNHAKYMTDKT
 AYIGTSNWTGN YFTDTCGASINITPDDGLGLRQQLEDIFMRDWN SKSYELYDTSPTK
 RCKLLKNMKQCTNDIYCDEIQPEKEIPEYSLE"

gene complement (31907..32317)
 /gene="VACA2K044"
 CDS complement (31907..32317)
 /gene="VACA2K044"
 /function="gene fragment, putative monoglyceride
 lipase"
 /note="similar to VACWR037, VACCP-K5L"

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/codon_start=1

/translation="MGATISILASYDNPNFLFTAMILMSPLVNADAVSKLNLLAAKLMG
TITPNAPVGKLCPEVSVDMDKVYKYQYDPLINHEKIKAGFASQVLKATNKVRKIISK
INTPRLSYSREQTMRLVMFQVHIISCNMQIVIEK"
    gene                complement (32339..32584)
                        /gene="VACA2K045"
    CDS                  complement (32339..32584)
                        /gene="VACA2K045"
                        /function="gene fragment, putative monoglyceride
lipase"
                        /note="similar to VACWR038, VACCP-K6L"
                        /codon_start=1

/translation="MSANCMFNLDNDYIYWKPITYPKALVFISHGAGKHSGRYDELAE
NISSLGILVFSHDHIGHGRSNGEKMIDDFTARGNY"
    gene                32723..33172
                        /gene="VACA2K046"
    CDS                  32723..33172
                        /gene="VACA2K046"
                        /function="unknown"
                        /note="similar to VACWR039, VACCP-K7R"
                        /codon_start=1

/translation="MATKLDYEDAVFYFVDDDKICSRDSIIDLIDEYITWRNHVIVFN
KDITSCGRLYKELMKFDDVAIRYYGIDKINEIVEAMSEGDHYINF TKVHDQESLFATI
GICAKITEHWGYKKISESRFQSLGNITDLMTDDNINILILFLEKKLN"
    gene                complement (33237..33917)
                        /gene="VACA2K047"
    CDS                  complement (33237..33917)
                        /gene="VACA2K047"
                        /function="unknown"
                        /note="similar to VACWR040, VACCP-F1L"
                        /codon_start=1

/translation="MLSMFMCNNIVDYVDDIDNGIVHDI EDEASNVDHDYVYPLPEN
MVYRFDKSTNILDYLSTERDHVMMAVRYYSKQRLDDLYRQLPTKTRSYIDIINIYCD
KVSNDYNRDMNIMYDMASTKSFTVYDINNEVNTILMDNKG LGVRLATISFITKLGRRC
MNPVKTIKMFTLLSHTICDDCFVDYITDISPPDNTIPNTSTREYLKLIGITAIMFATY
KTLKYMIG"
    gene                complement (33929..34372)
                        /gene="VACA2K048"
    CDS                  complement (33929..34372)
                        /gene="VACA2K048"
                        /function="dUTPase"
                        /note="similar to VACWR041, VACCP-F2L"
                        /codon_start=1

/translation="MFNMNINSPVRFVKETNRAKSPTRQSPGAAGYDLYSAYDYTIPP
GERQLIKTDISMSPKICYGRIAPRSLSLKGIDIGGGVIDEDYRGNIGVILINNGKC
TFNVNTGDRIAQLIYQRIYYPELEEVSQSLDSTNRGDQGF GSTGLR"
    gene                complement (34396..35838)
                        /gene="VACA2K049"
    CDS                  complement (34396..35838)
                        /gene="VACA2K049"
                        /function="kelch-like"
                        /note="similar to VACWR042, VACCP-F3L"

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TSVEFIIYTCINFILRDFRKEYCVECMMGIEYGLSNLLCHTKNFIAXHFLELEDDII
DNFDYLSMKLILESDELNVPDEYVVDVFIKWKYIKRRNRLGNLLLLIKNVIRSNYLSP
RGINNWKWILDCTKIFHCDKQPRKSYKYPFIEYPMNMDQIIDIFHMCTSTHVGEVVYL
IGGWMNNEIHNNIAIVNYISNNWIPIPPMNSPRLYASGIPANNKLYVVGGLPNPTSVE
RWFHGDAAWVNMPSSLKPRCNPAVASINNVIYVMGGHSETDTTTEYLLPNHDQWQFGP
STYYPHYKSCALVFGRRLLFLVGRNAEFYCESSNTWTLIDDPIYPRDNPELIIVDNKLL
LIGGFYRESYIDTIEVYNHHTYSWNIWDGK"
    gene                complement (35849..36808)
                        /gene="VACA2K050"
    CDS                  complement (35849..36808)
                        /gene="VACA2K050"
                        /function="ribonucleotide reductase small subunit"
                        /note="similar to VACWR043, VACCP-F4L"
                        /codon_start=1

/translation="MEPILAPNPNRFVIFPIQYYDIWNMYKKAESFWTVEEVDISKD
INDWNKLTPEKYFIKHVLAFFAASDGI VNNENLAERFCTEVQITEARCFYGFQMAIEN
IHSEMYSLIDITYVKDSNEKNYLFNAIETMPCVKKKADWAQKWIHDSAGYGERLIAFA
AVEGIFFSGSFASIFWLKKRGLMPGLTFSNELISRDEGLHCDFACLMFKHLLYPPSEE
TVRYIITDAVSIEQEFLLTAALPVKLIGMNCCEMMKTYIEFVADRLISELGFKKIYNVTN
PFD FMENISLEGKTNFFEKRVGEYQKMGVMSQKDNHFSLDVDF"
    gene                complement (36840..37805)
                        /gene="VACA2K051"
    CDS                  complement (36840..37805)
                        /gene="VACA2K051"
                        /function="unknown"
                        /note="similar to VACWR044, VACCP-F5L"
                        /codon_start=1

/translation="MGTNGVRVFVILYLLAVCGCIEYDVDDNVHICTHTNVSHINHTS
WYNDKVIALATEDKTSGYISSFIKRVNISLTCLNISSLRYEDSGTYKGVSHLKDGI
VTTT MNISVKANIIDL TGRVRYLTRNYCEVKIRCEITSFALNGSTTPPHMILGTVDKW
KYL PFPPTDDYRYVGELKRYISGNPYPTESLAL EISSTFNRFTIVKNLNDDEFSCYLFS
QNYSFHKMLNVRNICESKWKALNNNDNASSMPASHNNLANDLFSMMSQLQNDNDNDND
YSAPMNVDNLIMIVLITMLSIIILVIVVIAAISMYKKSKYRHIDN"
    gene                complement (37835..38059)
                        /gene="VACA2K052"
    CDS                  complement (37835..38059)
                        /gene="VACA2K052"
                        /function="unknown"
                        /note="similar to VACWR045, VACCP-F6L"
                        /codon_start=1

/translation="MSKILTFVKNKIIDLINNDQIKYSRVIMIEESD SLLPVDEVHAN
HGFD CVEMIDENISNENIEQYKTESFFTIN"
    gene                complement (38075..38317)
                        /gene="VACA2K053"
    CDS                  complement (38075..38317)
                        /gene="VACA2K053"
                        /function="unknown"
                        /note="similar to VACWR046, VACCP-F7L"
                        /codon_start=1

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/translation="MTLVMGSCCGRFCDAKNKNKKEDVEEGREGCYNYKNLNDLDESE
ARVEFGPLYMINEEKSDINTLDIKRRYRHTIESVYF"
    gene                complement (38461..38658)
                        /gene="VACA2K054"
    CDS                  complement (38461..38658)
                        /gene="VACA2K054"
                        /function="protein with iActA-like proline
repeats: not
                        required for actin tails formation"
                        /note="similar to VACWR047, VACCP-F8L"
                        /codon_start=1

/translation="MEGSKRRHDSRRPQQEQEQPRPTPPSYEEIAKYGHSFNVKRFT
NKEMCLKNDYPRIISYNPPPK"
    gene                complement (38718..39356)
                        /gene="VACA2K055"
    CDS                  complement (38718..39356)
                        /gene="VACA2K055"
                        /function="S-S bond formation pathway: thiol
substrate"
                        /note="similar to VACWR048, VACCP-F9L"
                        /codon_start=1

/translation="MAETKEFKTLYNLFIDSYLQKLAQHSIPTNVTCAIHIGEVIGQF
KNCALRITNKCMSNSRSLFTLMVESFIEVISLLPEKDRRAIAEEIGIDLDDVPSVVS
LEKNCNAYAEVNNIIDIQKLDIGECSAPPGQHMLLQIVNTGSAEANCGLQTIVKSLNK
IYVPPIIENRLPYYPWFLVGVAIILVIFTVAICSIRRNALALKYRYGTFLYV"
    gene                complement (39343..40662)
                        /gene="VACA2K056"
    CDS                  complement (39343..40662)
                        /gene="VACA2K056"
                        /function="ser/thr kinase"
                        /note="similar to VACWR049, VACCP-F10L"
                        /codon_start=1

/translation="MGVANDSSPEYQWMSPHRLSDTVILGDCLYFNNIMSQDLHQN
WAPSVRLLNYFKNFNRETLLKIEENDYINSSFFQQKDKRFYPINDDFYHISTGGYGIVF
KIDNYVVKFVFEATKLYSPMETTAEFTVPKFLYNLKGDEKKLIVCAWAMGLNYKLTF
LHTLYKRVLHMLLLLIQTMDGQELSLRYSSKVFLKAFNERKDSIKFVKLLSHFYPAVI
NSNINVINYFNRMFHFHFEHEKRTNYEYERGNIIIFPLALYSADKVDTELAIKLGFKSL
VQYIKFIFLQMALLYIKIYELPCCDNFLHADLKPDNILLFDSNEPIIIHLKDKKFVFN
ERIKSALNDFDFSQVAGIINKKIKNNFKVKHNWYYDFHFFVHTLLKTYPEIEKDIEFS
TALEEFIMCTKTDCDKYRLKVSILHPISFLEKFIMRDIFSDWINGGN"
    gene                complement (40685..41731)
                        /gene="VACA2K057"
    CDS                  complement (40685..41731)
                        /gene="VACA2K057"
                        /function="unknown"
                        /note="similar to VACWR050, VACCP-F11L"
                        /codon_start=1

/translation="MGFCIPLRSKMLKRGSRKSSSILARRPTPKKMNIIVTDLENRLKK
NSYIENTNQGNILMDSIFVSTMPVETLFGSYITDDSDDYELKDLLNVTYNIKPVIVPD
IKLDAVLDRDGNFRPADCFVLKLRDGFTHGALYLGHSAGFTATICLKNEGVSGLYI
PGTSVIRSNICQGDITVSRSSRGVQFLPQIGGEAIFLIVSLCPTKKLVETGFVPEIS

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SNDNAKIAARILSEKRKDTIAHIDTLIQHRQQLAYYNSCMLTEFLHYCNSYAGTIK
ESLLKETIQKDINITHNTITLLNETAKVIKLVKSLVDKEDTDIVNNFITKEIKNRDK
IVNSLSLSNLDFRL"

gene complement (41774..43681)
/gene="VACA2K058"

CDS complement (41774..43681)
/gene="VACA2K058"

/function="involved in plaque and EEV formation:

on IEV,

not CEV, IV or IMV"
/note="similar to VACWR051, VACCP-F12L"
/codon_start=1

/translation="MLNRIQTLMTANNYETIEILRNYLRLYIILARNEEGHGILIYD
DNIDSIMSMNITRLEVIGLTTHCTKLRSPPIPMSRLFMDEIDHESYSPKTSYPL
IDIIRKRSHEQGDIALALEQYGIENTDSISEINEWLSSKGLACYRFVKFNDYRKQMYR
KFSRCTIVDSMIIGHIGHHYIWIKNLETYTRPEIDVLPFDIKYISRDELWARISSLD
QTHIKTIAVSYGAITDNGPIPYMISTYPGNTFVNFNSVKDLILYFLDWIKDIMTSTR
TIILVGYSNLFDIPLLTVYWPNNCGWKIYNNTLISSD GARVIWMDAYKFSCGLSLQD
YCYHWGSKPESRPFDLIKSDAKRNSKSLVKESMASLKSLEYAFETQSGALEVLMSPC
RMFSFSRIEDMFLTSVINRVSENTGMGMYYPTNDIPFLFIESSICLDYIIVNNQESNK
YRIKSVLDI ISSQYPAGRPNYVKNGTGKGLYIALCKVTVPNTDHI PVVYHDDNTTT
FITVLTSDIETAIRAGYSIVELGALQWDDNIPELKDCLDSIKMIYDLNAVTTNNLL
EQLIENINFNNSSIISLFYTFAISYCRAFIYSIMETIDPVYISQFSYKELYVSSSYKD
INESMSQMVKL"

gene complement (43715..44833)
/gene="VACA2K059"

CDS complement (43715..44833)
/gene="VACA2K059"

/function="palmytilated EEV membrane protein:
phospholipase motif, required for IEV formation"
/note="similar to VACWR052, VACCP-F13L"
/codon_start=1

/translation="MWPFASVPAGAKCRLVETLPENMDFRSDHLTTFECFNEIITLAK
KYIYIASFCCNPLSTTRGALIFDKLKEASEKGIKIIVLLDERGKRN LGELQSHCPDIN
FITVNIDKKNNVGLLLGCFWVSDDERCYVGNASFTGGSIHITIKTLGVYSDYPPLATDL
RRRFDTFKAFNSAKNSWLNLC SAACCLPVSTAYHIKNPIGGVFFTDSP EHL LGYSRDL
DTDVVIDKLRS AKTSIDIEHLAIVPTTRVDGNSYWPDIYNSIIEAAINRGVKIRLLV
GNWDKNDVYS MATARSLDALCVQNDLSVKVFTIQNNTKLLIVDDEYVHITSANFDGTH
YQNHGFVSFNSIDKQLVSEAKKIFERDWWSSH SKSLKI"

gene complement (44851..45072)
/gene="VACA2K060"

CDS complement (44851..45072)
/gene="VACA2K060"

/function="unknown"
/note="similar to VACWR053, VACCP-F14L"
/codon_start=1

/translation="MKHRLYSEGLSISNDLNSIIGQQSTMDTDIEINEDDIMELLNIL
TELGCDVDFDENFSDIADDI LESLIEQDV"

gene complement (45344..45820)
/gene="VACA2K061"

CDS complement (45344..45820)
/gene="VACA2K061"

/function="unknown"
/note="similar to VACWR054, VACCP-F15L"

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/codon_start=1

/translation="MRSIAGLHKLKMEIFNVEELINMKPFKNMNKITINQKDNCLAN
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IDKVSQKKCKKYCISNRGNDDSLINLFIPTINKSIYIIIGLRMKNFWKPKFEIE"
    gene                complement (45827..46522)
                        /gene="VACA2K062"
    CDS                  complement (45827..46522)
                        /gene="VACA2K062"
                        /function="unknown"
                        /note="similar to VACWR055, VACCP-F16L"
                        /codon_start=1

/translation="MKVVIVTSSVASLLDASIQFQKTACRHHHCNYLSMQVVKEIEEFGT
INEKNLEFDTWKDVIQNDEIDALVFYRVKQISISTGVLYKSMMNRNRTKPISMYFVRDC
LAFDGDPPSFRMTSCNINAYNRSKIIDLIIILNMNKTCKNKIIGEFIIDNFGSVDALLS
IINSNVTWVTSVINNSNGRGINIRVSNKMLTITSFRRFVNKLKMYKTTKCASQLDNL
CTEMNKMDIIDKK"
    gene                46585..46890
                        /gene="VACA2K063"
    CDS                  46585..46890
                        /gene="VACA2K063"
                        /function="putative DNA-binding phosphoprotein in
virus
                        core"
                        /note="similar to VACWR056, VACCP-F17R"
                        /codon_start=1

/translation="MNSHFASAHTPFYINTKEGRYLVLKAVKVCVTRTVECEGSKASC
VLKVDKPSSPACERRPSSPSRCERMNPGKQVPFMRDMLQNMFAANRDNVASRLLN"
    gene                complement (46887..48326)
                        /gene="VACA2K064"
    CDS                  complement (46887..48326)
                        /gene="VACA2K064"
                        /function="poly-A polymerase catalytic subunit
VP55"
                        /note="similar to VACWR057, VACCP-E1L"
                        /codon_start=1

/translation="MNRNPDQNTFPNITLKIIEITYLGRVPSVNEYHMLKLQARNIQKI
TVFNKDIFVSLVKKNKKRFFSDVDTSASEIKDRILSYFSKQTQTYNIGKLFTIIELOS
VLVTTYTDILGVLTIKAPNVISSKISYNVTSMEELARDMLNSMNVAVIDKAKVMGRHN
VSSLVKNVNKLMEEYLRRHNKSCICYGSYSLYLINPNILYGDIDILQTNSTRTFLIDLA
FLIKFITGNIIILSKIPLYLRNYMVIKDENDNHIIDSFNIRQDTMNVVPKIFIDNIYIV
DPTFQLLNMIKMFQIDRLEDLSKDPEKFNARMATMLEYVRYTHGIVFDGKRNNMPMK
CIIDENNRIVTVTTKDYFSFKKCLVYLDENVLSSDILDNLNADTSCDFESVTNSVYLIH
DNIMYTYFSNTILLSDKGKVHEISARGLCACHILLYQMLTSGEYKQCLSDLLNSMMNRD
KIPIYSHTERDKKPGRHGFINIEKDIIIV"
    gene                complement (48323..50536)
                        /gene="VACA2K065"
    CDS                  complement (48323..50536)
                        /gene="VACA2K065"
                        /function="unknown"
                        /note="similar to VACWR058, VACCP-E2L"
                        /codon_start=1

/translation="MISVTDIRRAFLDNECHTITKAFGYLHEDNAIALIKIGFHPTYL

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PKVLYNNVVEFVPEKLYLFKPRTVAPLDLISTITKLKNVDKFASHINYHKNSILITGD
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INRDHFMYEPIYEHQVLDSDFLKTMIDRYGIVPINSIGIIDELCPEAIIIEILMAVVRPR
DAIRFLDIVNKNQLTEDSVKNYIINDIRRGKIDYIIPYVEDFLEDRTEDLGIYANIFF
EDAIDITKLDITKTELEHISKYMNYYTTYIDHIVNIILQNNYIDILASIIDYVQDVL
EELCIRIVCESTNPVPTSLPIHSTLVMVMCIQMKYVDIVEFLDEIDIDTLIEKGADP
ITEYTFTRWYNKHNDLITLYIKKYGFCPMMMKRLMFEYPLTKEASDHLKTMENRG
AIMFFPRTICTLPYLLCCNYKLIQKPIPFKEENRNIVYKKNRVLCFDSLENSAFKSL
IKIDSIPGLKTYNMKDITYEKSNNIICVRFIPQESIHNEERRIKLQLFDIARLASYGL
YYIPSRYLSSWTPVVMIEGREYTNPKIECLVILDLFSEEFIEYQNLGNAVSNKYEL
EYTIISNYQAAINCLMSTLLIYLVLSIRSISKTEDFVLSILNIFYKGLKINELLSEPV
SGVCIELDKIKDRASSGDSFIFLKKNELSKTSLCEKVCVETILDNNQSFKSSK"

gene complement (50637..51209)
/gene="VACA2K066"

CDS complement (50637..51209)
/gene="VACA2K066"
/function="double-stranded RNA binding protein:
inhibits
antiviral activities of interferon: host-range
determinant: host defense modulator"
/note="similar to VACWR059, VACCP-E3L"
/codon_start=1

/translation="MSKIYIDERSDAEIVCAAIAKNIGIEGATAAQLTRQLNMEKREVN
KALYDLQRSAMVYSSDDIPPRWFMTEADKPDADVMADAIIDDVSREKSMREDHKSFD
DVIPAKKIIDWKDANPVTIINEYCQITKRDSWFRIESVGPSNSPTFYACVDIDGRVFD
KADGKSKRDAKNNAKLAVDKLLGYVIIRF"

gene complement (51265..52044)
/gene="VACA2K067"

CDS complement (51265..52044)
/gene="VACA2K067"
/function="DNA-dependent RNA polymerase subunit
rpo30,
intermediate-gene transcription factor VITF1:
TFIIS-like"
/note="similar to VACWR060, VACCP-E4L"
/codon_start=1

/translation="MENVISSYSSNEQTSMAVAATDIRELLSQYVDDANLEDLIEWA
MEKSSKYYIKNIGNTKSNIETKFESKNIGIEYSKDSRNKLSYRNKPSIATNLEYKT
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NCKSRNTTPMMIQTRADEPPLVRHACRDCKQHFKPPKFRAFRNLNVTTQSIHENKEI
TEILPDNNPSPPEPASPIDDGLIRSTFDRNDEPPEDDE"

gene 52121..52690
/gene="VACA2K068"

CDS 52121..52690
/gene="VACA2K068"
/function="gene fragment, abundant component of
viroosome"
/note="similar to VACWR061, VACCP-E5R"
/codon_start=1

/translation="MLIIVLWLYGYNFIMSGSQCPMINDDSFTLKRKYQIDSAESTMK
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QKTYKLFSDISAIGKASRNPSKMVYALLLYMFPNLFDDHFRFIRYRMHPMSKIKHKIF
SPFKLNLIRILVEERFYNNECRSNKWNTS"

gene 52656..53105


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CDS /gene="VACA2K069"
52656..53105
/gene="VACA2K069"
/function="gene fragment, abundant component of
virosome"

/note="similar to VACWR061, VACCP-E5R"
/codon_start=1

/translation="MNADLINGTQVDKMLIAESDKYTIDARYNLKPMYRIKGESEEDT
LFIKQMV EQCVTSQELVEKVLKILFRDLFKSGEYKAYRYDDDDVENGFGLD LTKLNIV
HDIVEPCMPVRRPVAKILCKEMVNKYFENPLHIIGKNLQECIDFVSE"
gene 53242..54945
/gene="VACA2K070"
CDS 53242..54945
/gene="VACA2K070"
/function="unknown"
/note="similar to VACWR062, VACCP-E6R"
/codon_start=1

/translation="MDFIRRKYLIYTVENNIDFLKDDTL SKVNNFTLNHVLALKYLVS
NFPQH VITKDV LANTNFFVFIHMVRCKKVYEAVLRHAFDAP TLYVKALTKNYLSFSNA
IQSYKETVHKL TQDEKFLEVAEYMD ELGELIGVNYDLVLNPLFHGG EPIK DMEIIFLK
LFKKTD FKVVKKLSVIRLLIWAYLSKKDTGIEFADNDRQDIYTLFQQTGRIVHSNLTE
TFRDYIFPGDKTSYWVWLNESIANDADIVLNRHAITMYDKILSYIYSEIKQGRVNKNM
LKLVIYIFEPEKDIRELLEIIYDIPGDILSIIDAKNDDWKKYFISFYKANFINGNTFI
SDKTFNEDLFRVVQINPEYFDNERIMSLFSTSAADIKRFDELDINNSYISNIYEVN
DITLDTMDDMKKCQIFNEDTSYYVKEYNTYLF LHESDPMVIENGILKKLSSIKSKSRR
LNLFSKNILKYYLDGQLARLGLVLD DYKGDLLVKMINHLKSVEDVSAFVRFSTDKNPS
ILPSLIK TILASYNISII VLFQRFLRDNL YHVEEFLDKSIHLTKTDKKYILQLIRHGR
S"
gene 55027..55527
/gene="VACA2K071"
CDS 55027..55527
/gene="VACA2K071"
/function="soluble, myristylprotein has
N-myristyltransferase target MGxxxS/T/A"
/note="similar to VACWR063, VACCP-E7R"
/codon_start=1

/translation="MGTAATIQTPTKLMNKENAEMILEKIVDHIVMYISDESSDSENN
PEYIDFRNRYEDYRSLIIKSDHEFVKLCKNHA EKSSPETQQMIIKHIYEQYLIPVSEV
LLKPIMSGDIIITYNGCKDNEWMLEQLSTLNFNNLRTWNSCSIGNVTRLFYTFFSYLM
KDKLNI"
gene 55652..56473
/gene="VACA2K072"
CDS 55652..56473
/gene="VACA2K072"
/function="membrane protein may help wrap
virosome:
substrate"
associates with IV/IMV and cores: F10L kinase

/note="similar to VACWR064, VACCP-E8R"
/codon_start=1

/translation="MAATVPRFDDVYKNAQRRILDQETFFSRGLSRPLMKNTYLF DNY
AYGWIPETAIWSSRYANLDASDYYPISLGLLKKFEFLMSLYKGPIPVYEEKVNTEFIA
NGSFSGRYVSYLRKFSALPTNEFISFLLLTSIPIYNILFWFKNTQFDITKHTLFRYVY

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TDNAKHLALARYMHQTGDYKPLFSRLKENYIFTGPVPIGIKDIDHPNLSRARSPPSDYE
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gene complement (56480..59497)
/gene="VACA2K073"
CDS complement (56480..59497)
/gene="VACA2K073"
/function="DNA polymerase"
/note="similar to VACWR065, VACCP-E9L"
/codon_start=1

/translation="MDVRCINWFESHGENRFLYLKSRNGETVFIRFPHYFYVVTD
EIQSLSPPPFNARPLGKMRTIDIDETISYNLDIKDRKCSVADMWLIIEPKKRSIQNA
TMDEFLNISWFYISNGISPDGCYSLDEQYLTKINNGCYHCDDPRNCFAKKI PRFDIPR
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RGCLRIQSLMEMDYERELVLCSEIVLLRIAKQLLELTFDYVVVTFNGHNFDLRYITNRL
ELLTGEKII FRSPDKKEAVHLCIYERNQSSHKGVGGMANTTFHVNNNNGTIFFDLYSF
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RLLRFTLAERARYKKMLKQATSSTEKAIYDSMQYTYKIVANSVYGLMGRNSALYSYA
SAKCTSIGRRMILYLESVLNGAELSNGLRNFANPLSNPFYMDDRDINPIVKTSLPID
YRFRFRSVYGD TDSVFTEIDSQDVKSEIAKELERLINNRVLFNNFKIEFEAVYKNL
IMQSKKKYTTMKYSASSNSKSVPERINKGTSETRRDVSKFHKNMIMYKTRLSEMLSE
GRMNSNQVCIDILRSLETDLRSEFDRSSPLELFMLSRMHHSNYKSADNPNNMYLVTEY
NKNNPETIELGERYYFAYICPNGPWTKKL VNIKTYETIIDRSFKLGSDQRIFYEVYFK
RLTSEIVNLLDNKVL CISFFERMFGSKPTFYEA"

gene 59529..59816
/gene="VACA2K074"
CDS 59529..59816
/gene="VACA2K074"

/function="S-S bond formation pathway: sulfhydryl
oxidase,
substrates L1R/F9L"
/note="similar to VACWR066, VACCP-E10R"
/codon_start=1

/translation="MNPKHGWGRAVWTIIFIVLSQAGLDGNI EACKRKLYTIVSTLPCP
ACRRHATIAIEDNNVMSSDDLNYIYYFFIRLFNNLASDPKYAINVSKVNPL"

gene complement (59811..60200)
/gene="VACA2K075"
CDS complement (59811..60200)
/gene="VACA2K075"
/function="virion core protein"
/note="similar to VACWR067, VACCP-E11L"
/codon_start=1

/translation="MELVNIFLETDAGRVKFAIKNTDDVCASELINKFVELLSEYIHI
DQSEFYLVVKDKDIFYFKDRGSISIVNNEFYVFEDELLFVKDFTNVTGVEFIVTETM
PCR IIPKNNHAVISVVTNHKIFYNGLSL"

gene complement (60187..62187)
/gene="VACA2K076"
CDS complement (60187..62187)
/gene="VACA2K076"
/function="unknown"
/note="similar to VACWR068, VACCP-O1L"

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/codon_start=1

/translation="MFMYPEFARKALSKLISKKLNIEKVSSKHQLVLLDYGLHGLLPK
SLYLEAINS DILNVRFFPPEIINVTDIVKALQNSCRVDEYLKAVSLYHKNSLMVLGPN
VVKLMIEYNLLTHSDLEWLINENVVKATYLLKINAYMINFKIDLTVDEIIDLVKDIPV
GATLHLYNILNNIDLDIVLRISDEYNIPVVDILSKLTDEEMCIKLVTKYPMDNVINF
INQDVRYSPTFIKTIKDFVNKHLPTMYDGLNDYLHLSVIIDEDLIEEYKIKSVAMFNLE
YKTDVDTLTLDEQIFVEVNISSYYDFRYRQFADEFRDYIMIKERRQITMQSGDRIRRF
RPM SLRSTIIKKD TDSLEDILAHIDNARKNSKVSIEDVERIISSFRLNPCVVRRTMLS
DIDIKTKIMVLKIVKDWKSCALTL SAIKGIMVTD TINTVLSKILHHRNVFKYLSVE
NKEI AVCNCSRCLSLFYRELKSVRCDLRTDDGLLDRLYDLTRYALHGKINQNLIQORC
WG PLTEMLFNENKKKKLNNLM EYIKISDMLVYGHSIEKTLIPITD SLSFKLSVD TMSV
LNDQYAKVVIFNTII EYIIATIIYRLTVLDNYTNV KH FVSKVLHTVMEACGVLF SYI
KVNDKIEHELEEMVDKGT VPSYLYHLSINVISIILDDINGTR"
  gene      complement(62227..62553)
           /gene="VACA2K077"
  CDS      complement(62227..62553)
           /gene="VACA2K077"
           /function="nonessential glutaredoxin: not part of
E10R-G4L
           S-S bond formation pathway"
           /note="similar to VACWR069, VACCP-O2L"
           /codon_start=1

/translation="MAEEFVQQR LANNKVTIFVKYTCPF CRNALDILNKFSFKRGAYE
IVDIKEFKPENELRDYFEQITGGRTVPRIFFGKTSIGGYSDLLEIDNMDALGDILSSI
GVLRTC"
  gene      complement(62699..63637)
           /gene="VACA2K078"
  CDS      complement(62699..63637)
           /gene="VACA2K078"
           /function="DNA-binding core protein"
           /note="similar to VACWR070, VACCP-I1L"
           /codon_start=1

/translation="MAEFEDQLVFNSISARALKAYFTAKINEMVDELVTRKCPQKKKS
QAKKPEVRIPVDLVKSSFVKFGLCNYGGILISLINSLVENNFFTKDGKLD D TGKKEL
VLT DVEKRILNAIDKSSPLYIDISDVKVL AARLKRSATQFNFN GHTYHLENDKIEDLI
NQLVKDESIQLDEKSSIKDSMYVIPDELIDVLKTRLFRSPQVKDNIISRTRLYDYFTR
VTKRDESSIIYVILKDPRIASILSLETVKMGAFMYTKHSMLTNAISSRVDRYSKKFQES
FYEDIAEFVKENERVNVSRVVECLTVPNITISSNAE"
  gene      complement(63644..63865)
           /gene="VACA2K079"
  CDS      complement(63644..63865)
           /gene="VACA2K079"
           /function="unknown"
           /note="similar to VACWR071, VACCP-I2L"
           /codon_start=1

/translation="MDKLYAAIFGVYMGSPKDDLTD FIEIVKSVLSDEKTTTSTNNTG
CWGWYWLIIIF FIVLILL LLIYLYLKVVW"
  gene      complement(63866..64675)
           /gene="VACA2K080"
  CDS      complement(63866..64675)
           /gene="VACA2K080"
           /function="ssDNA-binding phosphoprotein"
           /note="similar to VACWR072, VACCP-I3L"

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/codon_start=1

/translation="MSKVIKKRVETSPRPTASSDSLQTCAGVIEYAKSISKSNACIE
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VTAASPMYQLLEAVYGNIKHKERIPNSLHSLSVETITEKTFKDESIFINKLNGSMVE
YVSTGESSILRSIEGELESLSKRERQLAKAIITPVVFYRSGTETKITFALKKLIIDRE
VVANVIGLSGDSERSVMTENVEEDLARNLGLVDIDDEYDESDSKEKPIFNV"
    gene                complement (64758..67073)
                        /gene="VACA2K081"
    CDS                  complement (64758..67073)
                        /gene="VACA2K081"
                        /function="ribonucleotide reductase large subunit"
                        /note="similar to VACWR073, VACCP-I4L"
                        /codon_start=1

/translation="MFVIKRGYKENVMFDKITSRIRKLCYGLNTDHIDPIKIAMKVI
QGIYNGVTTVELDTLAAEIAATCTTQHPDYAILAARIAVSNLHKETKKLFSEVMEDLF
NYVNPKNKGKHSPIISSITMDIVNKYKDKLNSVIIYERDFSYNFYGFKTLEKSYLLKIN
NKIVERPQHMLMRVAVGIHQWDIDSAIETYNLLSEKWFTHASPTLFNAGTSRHHQSSC
FLLNMIDDSIEGIYDTLKRCLISKMAGGIGLSISNIRASGSYISGTNGISNGIIPML
RVYNNTARYIDQGGNKRPGVMAIYLEPWHSDIMAFDLKNTGNEEHRTRDLFIALWI
PDLFMKRVKDDGEWSLMCPDECPGLDNVWGDEFERLYTLYERERRYKSIKARVWKA
IIESQIETGTPFILYKDACNKKSNQNLGTIKCSNLCETIIQYADANEVAVCNLASVA
LNMFVIDGRFDFLKLKDVVKVIVRNLNKIIDINYPIPEAEISNKRHRPIGIGVQGLA
DAFILLNYPFDSLEAQDLNKKIFETIYYGALEASCELAKEGPYDTYVGSYASNGILQ
YDLWNVVPSDLWNWEPLKDKIRTYGLRNSLLVAPMPTASTAQILGNNESEPEYTSNIY
TRRVLSGEFQVVPNPHLLRVLTERKLWNDEIKNRIMADGGSIQNTNLPEDIKRVYKTIW
EIPQKTIKMAADRGAFIDQSQSMNIHIADPSYSKLTSMHFYGWSLGLKTGMYYLRTK
PASAPIQFTLDKDKIKPLVVCDSICTSCSG"
    gene                complement (67100..67339)
                        /gene="VACA2K082"
    CDS                  complement (67100..67339)
                        /gene="VACA2K082"
                        /function="IMV protein VP13"
                        /note="similar to VACWR074, VACCP-I5L"
                        /codon_start=1

/translation="MVDAITVLTAIGITVLMMLMVISGAAMIVKELNPNDIFTMQSLK
FNRAVTIFKYIGLFIYIPGTIILYATYVKSLLMKS"
    gene                complement (67358..68506)
                        /gene="VACA2K083"
    CDS                  complement (67358..68506)
                        /gene="VACA2K083"
                        /function="unknown"
                        /note="similar to VACWR075, VACCP-I6L"
                        /codon_start=1

/translation="MNNFVKQVASKSLKPTKKLSPSDEVISLNECIISFNLDNFYYCN
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DDDPETHVVIKIFNSSLISIKSQVIEYLPYNVNNLSVLTTEKELSINTFNVPDSIP
MSIISFFPFDTFILVILFFGVYNDSCGISYISPKERLPYIIILKPLVSEINMLSD
EIGRTSSIRIFNSTSVKKFPTNTLTSICEIVYSFDESSFPKTFPTPLNASPYIPKKI
VSLLDLPSNVEIKAISRGGVDFITHINNKRNLNTILVIAKDNFLKNSTFSGTFIKENII
WKGIYTYRIKSSFPVPTIKSVTNKKKICKKHCFVNSQYTTRTLSHIL"
    gene                complement (68499..69770)
                        /gene="VACA2K084"
    CDS                  complement (68499..69770)

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/gene="VACA2K084"
/function="viral core cysteine proteinase"
/note="similar to VACWR076, VACCP-I7L"
/codon_start=1

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GYVVEKYDKSTTAGKVSCIPIGMMLELVESGHLSPNSSELDQKKELTDELKTRYHS
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IEPERGAWMSNRSIKNLVSQFAYGSEVDYIGQFDMRFLNSLAIHEKFDAFMNKHILSY
ILKDKIKSSTSFRVFMFGFCYLSHWKCVIYDKKQCLVSFYDSGGNIPTEFHHYNNFYFY
SFSGDGFTNHRHSVLDNTNCDIDVLFRRFFECTFGAKIGCINVEVNQLLESECGMFISL
FMILCTRTPPKSFKSLKKVYTFFKFLADKKMTLFSILFNLHDLSLDITETDNAGLKE
YKRMEKWTKKSinVICDKLTTKLNRIVNDDE"
  gene 69776..71806
  CDS 69776..71806
    /gene="VACA2K085"
    /gene="VACA2K085"
    /function="RNA-helicase, DExH-NPH-II: DNA-helicase
aided
    by L4R"
    /note="similar to VACWR077, VACCP-I8R"
    /codon_start=1

/translation="MEKNLPDIFFFPNCVNVFSYKYSQDEFNMSKTERDSFSLAVFP
VIKHRWHNAHVVKHKGIVKSTEARGGKVSPPSLGKPAHINLTTKQYIYSEHTISFEC
YSFLKCITNTEINSFDEYILRGLLEAGNSLQIFSNSVGKRTDTIGVLGNKYPPSKIPL
ASLTPKAQREIFLAWISHRPVVLTTGGTGVGKTSQVPKLLLWFNYLFGGFSTLDKITDF
HERPVILSLPRIALVRLHSNTILKSLGFKVLDGSPISLRYGSIPEELINKQPKKYGIV
FSTHKLSTLTKLFSYGTLLIDEVHEHDQIGDIIIVARKHHTKIDSMFLMTATLEDDRE
RLKVFLPNPAFIHIPGDTLFIKISEVFIHNKINPSSRMAYIEEKRNLVTAIQMYTPPD
GSSGIVFVASVAQCHEYKSYLEKRLPYDMYIIHGKVLDDIDEILEKVYSSPNVSIIST
PYLESSVTIHNVTIHYDMGRVFVPAPFGGSQQFISKSMRDQRKGRVGRVNPPTYVYFY
DLSYMKSIQRIDSEFLHNYILYANKFNLTLPEDLFIPTNLDILWRTKEYIDSFDIST
ETWNKLLSNYMKMIEYAKLYVLSPILAEELDNFERTGELTSIVQEAILLSNLRIKIL
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  gene complement (71810..73585)
  CDS complement (71810..73585)
    /gene="VACA2K086"
    /gene="VACA2K086"
    /function="insulin metalloproteinase-like has ENE
and
    HLEH inverse of HXXEX sites"
    /note="similar to VACWR078, VACCP-G1L"
    /codon_start=1

/translation="MIVLPNKVRIFINDRMKKDIYLGISNFGFENDIDEILGIAHLL
HLLISFDSTNFLANASTSRYSMSFWCKSINSATESDAIRTLVSWFFSNGKLDNFSL
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RISGSNIVIFVKRLGPGTLDFFKQTFGSLPACPEIIPSSIPVSTNGKIVMTPSPFYTV
MVKINPTLDNILGILYLYETIYHLIDYETIGNQLYLTVSFIDETYESFLRGEAILQIS
QQQRINMNYSDDYMMNIYLNFPWLSDLDYITRINDDSKSLISLTNEIYASIIINRD
IIVYIPNFSKAMCNTRDTQQHPVVLDATNDGLIKKPYRSIPLMKRLTSNEIFIRYGD
ASLMDMITLSLSKQDISLKRNAEGIRVKHSFSADDIQAIMESDSFLKYSRSKPAAMYQ
YIFLSFFASGNSIDDILANRDSTLEFSKRTKSKILFGRNTRYDVTAKSSFVCGIVRGK
SLDKTSLVEMMWDLKKKGLIYSMEFTNLLSKNTFYLFYFTFTIYTDDEVYDYLNTNKLFS
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  gene complement (73582..73917)

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CDS /gene="VACA2K087"
complement(73582..73917)
/gene="VACA2K087"
/function="unknown"
/note="similar to VACWR079, VACCP-G3L"
/codon_start=1

/translation="MASLLYLILFLLFVCISYYFTYYPTNKLQAAVMETDRENAIIRQ
RNDEIPTRTLDTAIFTDASTVASAQIHLYNSNIGKIIMSLNGKKHTFNLYDDNDIRT
LLPILLLSK"
gene 73911..74573
/gene="VACA2K088"
CDS 73911..74573
/gene="VACA2K088"
/function="late transcription elongation factor"
/note="similar to VACWR080, VACCP-G2R"
/codon_start=1

/translation="MPFRDLILFNLSKFLLTEDEESLEIVSSLCRGFEISYDDLITYF
PDRKYHKYIYKVFEHVDLSEELSMEFHDTTLRDLVYLRLYKYSKIRPCYKLGDNLKG
IVVIKDRNIYIREANDDLIEYLLKEYTPQIYTYSNERVPIAGSKLILCGFSQVTFMAY
TTSHITTNKKVDVLVSKKCIDELVDPINYLQNLFDKSGTGINKILRKIFYSVTGGQ
TP"
gene complement(74543..74917)
/gene="VACA2K089"
CDS complement(74543..74917)
/gene="VACA2K089"
/function="S-S bond formation pathway:
thioredoxin-like"
/note="similar to VACWR081, VACCP-G4L"
/codon_start=1

/translation="MKNVLIIFGKPYCSICENVSESVEELKSEYDILHVDILSFFLKD
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NLEILKSEIEKATYGVWPPVTE"
gene 74920..76224
/gene="VACA2K090"
CDS 74920..76224
/gene="VACA2K090"
/function="unknown"
/note="similar to VACWR082, VACCP-G5R"
/codon_start=1

/translation="MGIKNLKSLLLENKSLTILDDNLYKVYNGIFVDTMSIYIAVANC
VRNLEELTTVFIKYVNGWVKGGHVTFLFIDRGSIKIKQDVRDKRRKYSKLTKDRKMLE
LEKCTSEIQNVTGFMEEEIKAKMQLKIDKLTQIYLSDSDNKISLNEILTHFNNNEN
VTLFYCDERDAEFVMCLEAKTHFSTTGEWPLIISTDQDTMLFASADNHPKMIKNLTQL
FKYVPSAEDNYLAKLTALVNGCDFFPGLYGASITPNNLNKIQLFSDFITDNIIVTSLAI
KNYYRKTNSTVDVRNIIVTFINDYANLDDVYSYVPPCQCTVQEFIFSALDEKWNNFKSS
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gene 76232..76423
/gene="VACA2K091"
CDS 76232..76423
/gene="VACA2K091"
/function="DNA-dependent RNA polymerase subunit
rpo7"

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        /note="similar to VACWR083, VACCP-G5.5R"
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/translation="MVFQLVCSTCGKDISHERYKLIIRKKS LKDV LVS VKNECCRLKL
STQIEPQRNLTVQPLLDIN"
    gene                76425..76922
                        /gene="VACA2K092"
    CDS                 76425..76922
                        /gene="VACA2K092"
                        /function="unknown"
                        /note="similar to VACWR084, VACCP-G6R"
                        /codon_start=1

/translation="MDPVNFIKTYAPRGSII FINY TMSLTSHLNPSIEKHVGIYYGTL
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DYLKG"
    gene                complement(76887..78002)
                        /gene="VACA2K093"
    CDS                 complement(76887..78002)
                        /gene="VACA2K093"
                        /function="virion structural protein"
                        /note="similar to VACWR085, VACCP-G7L"
                        /codon_start=1

/translation="MAAEQRRSTIFDIVSKCIVQSVLRDISINSEYIESKAKQLCYCP
ASKKESVINGIYNCCESNIEIMDK EQLLKILDNLRCHSAHVCNATDFWRLYNSLKRFT
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EMKYALINLVQYRILPMIIGEP IIVAGFSGKEPISDYS AEVERLMELPVKTDIVNTTY
DFLARKGIDTSNNIAEYIAGLKIEEIEKVEKYLPEVISTIAN SNI IKNKKSIFPANIN
DKQIMECSRMLDTSEKYSKG YKTDGAVTSPLTGNNTITTFIPISASDMQKFTILEYLY
IMRVMANNVKKKNEGKNNGGVVMHINS PFKVINLPKC"
    gene                78033..78815
                        /gene="VACA2K094"
    CDS                 78033..78815
                        /gene="VACA2K094"
                        /function="late gene transcription VLTF-1"
                        /note="similar to VACWR086, VACCP-G8R"
                        /codon_start=1

/translation="MSIRIKIDKLRQIVAYFSEFSEEVSINVDSTDELMYIFAALGGS
VNIWAI IPLSASVFYRGAENIVFNL PVSKVKSC LCSFHND AIIDIEPDLKNNLVKLSS
YHVVS VDCNKELMPIRTDTTICLSIDQKKS YVFN FHKYEEKCCGRTVIHLEWLLGFIK
CISQHQHLAIMFKDDNIIMKTPGNTDAFSREYSMTECSQELQKFSFKIAISSLNKLRG
FKKRVNVFETRIVMDNDDNILGMLFSDRVQSFKINIFMAFLD"
    gene                78835..79857
                        /gene="VACA2K095"
    CDS                 78835..79857
                        /gene="VACA2K095"
                        /function="myristylprotein"
                        /note="similar to VACWR087, VACCP-G9R"
                        /codon_start=1

/translation="MGGGVSVELPKRDPPPGVPTDEMLLNVDKMH DVIAPAKLLEYVH
IGPLAKDKEDKVKKRYPEFRLVNTGPGGLSALLRQSYNGTAPNCCRTFN RTHYWKD G
KISDKYEEGAVLESCWPDVHDTGKCDVDLFDWCQGD TFD RNIC HQWIGSAFNRS DRTV
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KYMRCSPYTRDKLEESLKYAEPRECWDPECSNANVNFLTRNYYNNLGLCNIVRCNTSV
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 ILIVAI"

gene 79858..80610
 /gene="VACA2K096"
 CDS 79858..80610
 /gene="VACA2K096"
 /function="IMV membrane protein target of
 neutralizing antibody: S-S bond formation pathway thiol
 substrate:
 myristylprotein"
 /note="similar to VACWR088, VACCP-L1R"
 /codon_start=1

/translation="MGAAASIQTTVNTLSEIRISSKLEQEANASQTKCDIEIGNFYIR
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 ILANKENVHWTTYMDTFFRTSPMVIATTTDMQN"

gene 80642..80899
 /gene="VACA2K097"
 CDS 80642..80899
 /gene="VACA2K097"
 /function="unknown"
 /note="similar to VACWR089, VACCP-L2R"
 /codon_start=1

/translation="MEVIADRLDDIVKQNIADKVFDFVIHGLEHQCPAILRPLIRLF
 IDILLFVIVIIYIFTVRLVSRNYQMLLVVLVITLTIFYFFIL"

gene complement(80889..81941)
 /gene="VACA2K098"
 CDS complement(80889..81941)
 /gene="VACA2K098"
 /function="unknown"
 /note="similar to VACWR090, VACCP-L3L"
 /codon_start=1

/translation="MNTRTDVTNDNIDKNPTKRGDRNIPGRNERFNDQNRFNNDIPKP
 KPRLQPNQPPKQDNKCREENGDFINIRLCAYEKEYCNDGYLSPAYYMLKQVDEEMSC
 WSELSSLVRSRKAVGFPLLKAAKRISHGSMLYFEQFKNSKVVKLTQVVKCLNDTVIFQ
 TVVILYSMYKRGISNEFCFNLVSIPTNIVFSVNQLMFNICTDILVVLSICGNRLYR
 TNLQSCYLNFIHGHEIARRGYEHSNYFFEWLIKHNHISLLTKQTMIDILKVKKKYATG
 APVNRLLLEPGTLVYVPKEDYYFIGISLTDVSIISDNVRVLFSTDGIVLEIEDFNIKHLF
 MAGEMFVRSQSSTIIV"

gene 81966..82721
 /gene="VACA2K099"
 CDS 81966..82721
 /gene="VACA2K099"
 /function="core protein vp8: microtubule-
 associated,
 ssRNA/ssDNA-binding protein"
 /note="similar to VACWR091, VACCP-L4R"
 /codon_start=1

/translation="MSLLENLIEEDTIFFAGSISEYDDLQMVIAKSKFPRSMLSI
 FNIVPRTMSKYELELIHNENITGAMFTTMYNIRNNLGLGDDKLTIEAIENYFLDPNNE

VMPLIINNTDMTAVIPKKSRRKKNKMVIFRQGSSPILCIFETRKKINIYKENMESAS
 TEYTPIGDNKALISKYAGINVLNVYSPSTSMRLNAIYGFTNKNKLEKLSTNKELESYS
 SSPLQEPIRLNDLFLGILLECVKKNIPLTDIPTKD"
 gene 82731..83117
 /gene="VACA2K100"
 CDS 82731..83117
 /gene="VACA2K100"
 /function="putative membrane protein"
 /note="similar to VACWR092, VACCP-L5R"
 /codon_start=1

 /translation="MENVPNVYFNPVFIEPTFKHSLLSVYKHRLIVLFEVVFVFIILY
 VFFRSELNMFFMPKRKIPDPIDRLRRANLACEDDKLMIYGLPWMTTQTSALSINSKPI
 VYKDCAKLLRSINGSQPVSLLNDVLRRL"
 gene 83074..83535
 /gene="VACA2K101"
 CDS 83074..83535
 /gene="VACA2K101"
 /function="virion protein required for
 morphogenesis"
 /note="similar to VACWR093, VACCP-J1R"
 /codon_start=1

 /translation="MDHNQYLLTMFFADDDSFYKYLASQDDESSLSDILQITQYLDLFL
 LLLLIQSKNKLAVGHCHYESLSEYRQLTKFTDSQDFKKLFNKVPIVTDGRVKLNKGY
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 gene 83551..84084
 /gene="VACA2K102"
 CDS 83551..84084
 /gene="VACA2K102"
 /function="thymidine kinase"
 /note="similar to VACWR094, VACCP-J2R"
 /codon_start=1

 /translation="MNGGHIQLIIGPMFSGKSTELIRRVRRYQIAQYKCVTIKYSNDN
 RYGTGLWTHDKNNFEALEATKLCVLESITDFSVIGIDEGQFFPDIVEFCERMANEGK
 IVIVAALDGTFRKPFNNILNLIPLSEMVKLTAVCMKCFKEASFSLRGEETEIEIIL
 GGNDMYQSVCRKCYIDS"
 gene 84150..85151
 /gene="VACA2K103"
 CDS 84150..85151
 /gene="VACA2K103"
 /function="multifunctional poly-A polymerase
 subunit, cap
 methyltransferase, and transcription elongation
 factor"
 /note="similar to VACWR095, VACCP-J3R"
 /codon_start=1

 /translation="MDVVSLLDKPFMYFEEIDNELDYEPESANEVAKKLPYQGQLKLLL
 GELFFLSKLQRHGILDGATVVYIGSAPGTHIRYLRDHFYNLGVIIKWMLIDGRHHDPI
 LNLGRDVTLVTRFVDEEYLRSLIKQLHPSKIIILISDVRSKRGNEPSTADLLSNYALQ
 NVMISILNPVASSLKWRCPFPDQWIKDFYIIPHGKMLQPFAPSYSAEMRLLSIYTGEN
 MRLTRVTKLDAVNIEKKMYLNLKIVRNKVVVNFDPNQEYDYFHYFMLRTVYCNKTF
 PTTKAKVLFLQQSIFRFLNIPTTSTEKVSHEPIQRKVSSKDFMSKNRNSKRSVRSNK"
 gene 85066..85623
 /gene="VACA2K104"

CDS 85066..85623
 /gene="VACA2K104"
 /function="DNA-dependent RNA polymerase subunit
 rpo22"
 /note="similar to VACWR096, VACCP-J4R"
 /codon_start=1
 /translation="MNQYNVKYLAKILCLKTEIARDPYAVINRNVLLRYTTDIEYNDL
 VTLITVRHKIDSMKTVFQVFNESSINYTPVDDDYGEPIIITSYLQKGHNKFPVNFLYI
 DVVISDLFPSFVRLDTTETNIVNSVLQGTGDGKKTLLRLPKMLETEIVVKILYRPNIPK
 IVRFFRNNMVTGVEIADRSVISVAD"
 gene complement(85685..86086)
 /gene="VACA2K105"
 CDS complement(85685..86086)
 /gene="VACA2K105"
 /function="late 16kDa putative membrane protein"
 /note="similar to VACWR097, VACCP-J5L"
 /codon_start=1
 /translation="MTDEQIYAFCDANKDDIRCKCIYPDKSIVRIGIDTRLPPYCWYE
 PCKRSDALLPASLKKNITKCNVSDCTISLGNVSITDSKLDVNNVCDSKRVATENIAVR
 YLNQEIRYPIDIKWLPIGLLALAILILAFF"
 gene 86193..90053
 /gene="VACA2K106"
 CDS 86193..90053
 /gene="VACA2K106"
 /function="DNA-dependent RNA polymerase subunit
 rpo147"
 /note="similar to VACWR098, VACCP-J6R"
 /codon_start=1
 /translation="MAVISKVTYSLYDQKEINATDIIISHVKNDDDIGTVKDGRLGAM
 DGALCKTCGKTELECFHWGKVSIYKTHIVKPEFISEIIRLLNHICIHCGLLRSREPY
 SDDINLKELSGHALRRLKDKILSKKKSCWNSECMQPYQKITFSKKKVCVFNKLLDDINV
 PNSLIYQKLISIHEKFWPLLEIHQYPANLFYTDYFPPIIRPAISFWIDSIPKETN
 ELTYLLGMIVKNCNLNADEQVIQKAVIEYDDIKIISNNTTSINLSYITSGKNMIRSY
 IARRKDQTARSVIGPSTSITVNEVGMPAYIRNTLTEKIFVNAFTVDKVKQLLASNQV
 KFYFNKRLNQLTRIRQGFINKNIHLLPGDWVEVAVQEYTSIIFGRQPSLHRYNVIAS
 SIRATEGDTIKISPGIANSQNADFDGDEEWMILEQNPKAVIEQSILMYPTTLKHDIH
 GAPVYGSIQDEIVAAYSLFRIQDLCLDEVNLILGKYGREFDPKGKCKFSGKDIYTYLI
 GEKINYPGLLKDGEIIANDVDSNFVAMRHLSLAGLLSDHKSINVEGINFIIKSSYVFK
 RYLSIYGFGVTFKDLRPNSTFTNKLEAINVEKIELIKEAYAKYLNDVRDGIKIVPLSKA
 LEADYVESMLSNLTNLNIREIEEHMRQTLIDDPDNNLLKMAKAGYKVNPTELMYILGT
 YGQQRIDGEPATRVLGRVLPYLPDSKDPEGRGYIILNSLTGKLTGSQYYFSMLVARS
 QSTDIVCETSRTGT LARKIIKKMEDMVVDGYGQVIGNTLIKYAANYTKILGSVCKPV
 DLIYPDESMTWYLEISALWNKIKQGFVYSQKQKLAKKTLAPFNFLVFKPTTEDNAIK
 VKDLYDMIHNVIDDVREKYFFTVSNIDFMEYIFLTHLNPSRIRITKETAITIFEKFFE
 KLNNTLGGGTPIGIIISAQVLSEKFTQQALSSFHTEKSGAVKQKLGFEFNNLTNLSK
 NKTEIITLVSDDISKLQSVKINFVCLGELNPNITLRKETDKYVVDIIVNRLYIKRA
 EITELVVEYMIERFISFSVIVKEWGMETFIEDEDNIRFTVYLNFEPEELNLSKFMV
 LPGAANKGKISKFKIPIISDYTGYYDFNQTKLNKMTVELMNLKELGSFDLENVNVYPG
 VWN TYDIFGIEAAREYLCEAMLNTYGEFGDYLYQPCDLLASLLCASYEPESVNFKFKG
 AASTLKRATFGDNKALLNAALHKKSEPIINDNSSCHFFSKVPNIGTGYYKYFIDLGLLM
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 gene complement(90050..90565)
 /gene="VACA2K107"
 CDS complement(90050..90565)

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        /gene="VACA2K107"
        /function="tyr/ser protein phosphatase"
        /note="similar to VACWR099, VACCP-H1L"
        /codon_start=1

/translation="MDKKSLEYKYLRLRSTGDMHRAKSPTIMTRVTNNVYLGNYKNAMD
APSSEVKFKYVLNLTMDKYTL PNSNINIIHIPLVDDTTT DISKYFDDVTAFLSKCDQR
NEPVLVHCAAGVNRSGAMILAYLMSKNKESLPMLYFLYVYHSMRDLRGAFVENPSFKR
QIIKEYVIDKN"
    gene          90579..91148
                  /gene="VACA2K108"
    CDS           90579..91148
                  /gene="VACA2K108"
                  /function="unknown"
                  /note="similar to VACWR100, VACCP-H2R"
                  /codon_start=1

/translation="MDKTTLSVNACNLEYVREKAIVGVQAAKTSTLIFFVII LAISAL
LLWFQTSNDNPVFNELTRYMRIKNTVNDWKS LTDSKTKLES DRGRLLAAGKDDIFEFKC
VDFGAYFIAMRLDKKTYLPQAIRRGTDGAWMVKKAAKVDPSAQQFCQYLIKHKSN NVI
TCGNEMLNELGYSGYFMSPHWCSDFSNME"
    gene          complement(91151..92125)
                  /gene="VACA2K109"
    CDS           complement(91151..92125)
                  /gene="VACA2K109"
                  /function="IMV heparin binding surface protein
involved in
                  IMV maturation"
                  /note="similar to VACWR101, VACCP-H3L"
                  /codon_start=1

/translation="MAAVKTPVIVVPVIDRPPSETFPNVHEHINDQKFDDVKDNEVMP
EKRNVVVVKDDPDHYKDYAFIQWTGGNIRNDDKYTHFFSGFCNTMCTEETKRNIARHL
ALWDSNFFTELENKKVEYVVIVENDNVIEDITFLRPVLKAMHDKKIDILQMREIITGN
KVKTELVMKDNHAIPTYTGGYDVLSAYIIRVTALNIVDEI IKSGGLSSGFYFEIAR
IENEMKINRQILDNAAKYVEHDPRLVAEHRFENMKPNFWSRIGTAAAKRYPGVMYAFT
TPLISFFGLFDINVIGLIVILFIMFMLIFNVKSKLLWFLTGTFTVTAFI"
    gene          complement(92126..94513)
                  /gene="VACA2K110"
    CDS           complement(92126..94513)
                  /gene="VACA2K110"
                  /function="RAP94: tightly associated with DNA-
dependent
                  RNA polymerase, aids early-stage transcription
                  preinitiation and termination"
                  /note="similar to VACWR102, VACCP-H4L"
                  /codon_start=1

/translation="MDSKETILIEIIPKIKAYLLDANISPKSYDDFISRNKNIFVINL
YNVSTITEEDIRLLYTTIEQNIDADDQTLVAIFSYIGYKFEQAVKEEISTSLSFNDKN
TTDEMTYNLYDLFFNTLDMYLRQKKISILVNDDVRGDVIVSYKNSDLVSSFNAELEPE
IKKI PFNMKNLLPYLEKNLDQLRFSKKYLDFAYL CRHIGIPI SKKKYNVRYVFLYKID
GLSIPII IKDFLDVKYVYLENTGKIYKNSFSEDHNNLS DWGKVI IPLLKDRHLYSYI
FLSSYHLHSYYTDLIARDEPVFVKRKKLDIIEIDEPEAWKRDRVVEFAPCEHQIRLKE
AMKVDANYFTKINNFANEFYIYEDGVAYCRVCGINIPFNLDAAVDIKNTVIVSTFNK
TIFLSEPYSYFVHSQRFIFNIIMSFDNIMKSQTWVMKYNINRLILNFLIDINSRRQ EY
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SYMTSKNKTVEESTLKYAISVVIYDFLVKTRICEKGS�DTIVLFTDVYTSIMPEELD
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 EQKIVAPTPSVEPTDASLKNFKELTCDEDIKILIRVHDTNATKLVIFPSPHLKIEIERK
 KLIIPKLSLYITNTLKYYYNSYLYVFRFGDMPFEEELIDHEHVQYKINCYNILRYH
 LLPDSDFVVFYFSNSLNREALEYAFYIFLSKYVNVKQWIDENITRIKELYMINFNN"

gene 94699..95310
 /gene="VACA2K111"
 CDS 94699..95310
 /gene="VACA2K111"
 /function="morphogenesis-related, substrate of B1R
 kinase:
 late gene transcription factor VLTf-4"
 /note="similar to VACWR103, VACCP-H5R"
 /codon_start=1

/translation="MAWSITNKADTSSFTKMAEIRAHKNSAENKDKNEDIFPEDVII
 PSTKPKTKRATTPRKPAATKRSTKKEVEEVVIEEYHQTEKNSPSPGVGDIVESVA
 AVELDDSDGDDEPMVQVEAGKVNHSARSDLSLDKVAATDNIVKDLKKIITRISAVSTVL
 EDVQAAGISRQFTSMTKAITTLSDLVTEGKSKVVRKKVKTCCK"

gene 95311..96255
 /gene="VACA2K112"
 CDS 95311..96255
 /gene="VACA2K112"
 /function="topoisomerase type IB"
 /note="similar to VACWR104, VACCP-H6R"
 /codon_start=1

/translation="MRALFYKDGKLFDTNNFLNPVLDDNPAYEVLQHVKIPTHLTDDV
 VYEQTWEEALTRLIFVGSDDSKGRRQYFYGKMHVQNRNAKRDRIFVRVYNVMKRINCFI
 NKNIKSSSTDSNYQLAVFMLMETMFFIRFGKMKYLKENETVGLLTLKNKHIEISPDEI
 VIKFVGKDKVSHEFVVHKSNRLYKPLLKLTDDSSPEEFLFNKLSEKRVYECIKQFGIR
 IKDLRTYGVNYTFLYNFWTNVKSISPLPSPKKLIALTIKQTAEVVGHSTPSISKRAYMA
 TTILEMVKDKNFLDVVSKTTFDEFLSIVVDHVKSSTDG"

gene 96292..96732
 /gene="VACA2K113"
 CDS 96292..96732
 /gene="VACA2K113"
 /function="unknown"
 /note="similar to VACWR105, VACCP-H7R"
 /codon_start=1

/translation="MEMDKRIKSLAMTAFFGELSTLDIMALIMSIFKRHPNNTIFSVD
 KDGQFMIDFEYDNYKASQYLDLTLTPIFGDECKTHASSIAEQLACADIKEDISEYIK
 TTPRLKRFIKKYRNRSDTRISRDTEKLKIALAKGIDYEYIKDAC"

gene 96776..99310
 /gene="VACA2K114"
 CDS 96776..99310
 /gene="VACA2K114"
 /function="large subunit of mRNA capping enzyme:
 transcription termination factor VTF"
 /note="similar to VACWR106, VACCP-D1R"
 /codon_start=1

/translation="MDANVVSSSTIATYIDALAKNASELEQRSTAYEINNELELVFIK
 PPLITLTNNVNISTIQESFIRFTVTNKEGVKIRTKIPLSKVHGLDVKNVQLVDAIDNI
 VWEKKSILVTENRLHKECLLRLSTEERHIFLDYKKGSSIRLELVNLIQAKTKNFTIDF

KLKYFLGSGAQSKSSLLHAINHPKSRPNTSLEIEFTPRDNETVPYDELIKELTTLSRH
IFMASPENVI LSPPINAPIKTFMLPKQDIVGLDLENLYAVTKTDGIPITIRVTSNGLY
CYFTHLGYIIRYPVKRIIDSEVVVFGEAVKDKNWTVYLIKLIIEPVNAISDRLEESKYV
ESKLVDICDRIVFKSKKYE GPFTTTTSEVVDMLSTYLPKQPEGVILFYSGPKSNIDFK
IKKENTIDQTANVVFYMSSEPIIFGESSIFVEYKKFSNDKGFPKEYGSGKIVLYNGV
NYLNNIYCLEYINTHNEVGIKSVVVPKIFIAEFLVNGEILKPRIDKTMKYINSEDDYGG
NQHNIIIVEHLRDQSIKIGDIFNEDKLSDVGHQYANNDKFRNLNPEVSYFTNKRTRGPLG
ILSNYVKTL LISMYCSKTFLDDSNKRKVL AIDFGNGADLEKYFYGEIALLVATDPDAD
AIARGNERYNKLNSGIKTKYYKFDYIQETIRSDFVSSVREVFFYFGKFNIIDWQFAIH
YSFHPRHYATVMNNLSELTASGGKVLITTMGDGKLSKLTDKKTFIIHKNLPSSENYMS
VEKIADDRIVVYNPSTMSTPMTEYIIKKNDIVRVFNEYGFVLVDNVDFATIIERSKKF
INGASTMEDRPSTKNFFELNRGAIKCEGLDVEDLLSYVVVYVFSKR"

gene complement (99269..99709)
/gene="VACA2K115"
CDS complement (99269...99709)
/gene="VACA2K115"
/function="virion core protein"
/note="similar to VACWR107, VACCP-D2L"
/codon_start=1

/translation="MSINIDIKKITDLLNSSILFPDDVQELLREKYIVLERKSNGTPT
VAHIYKTMARFDNKSIYRIAKFLFMNRPDVIKLLFLEDVEPLL PDKSINISINNTEYP
QLEGPIGTKIALLELFNAFRTGISEPIPYYYLPLRKDINNIVTK"

gene 99702..100415
/gene="VACA2K116"
CDS 99702..100415
/gene="VACA2K116"
/function="virion core protein"
/note="similar to VACWR108, VACCP-D3R"
/codon_start=1

/translation="MDIFIVKDNKYPKVDNDDNEVFILLGNHND FIRLKLTKLKEHVF
FSEYIVTPDTYGLCVELNGSSSFQHGGRYIEVEEFIDAGRQVRWCSTSNHISKDIPED
MHTDKFVIYDIYTFDSFKNKRLVVFVQVPPSLGDDSYLTNPLLSPPYRNSVARQMVNDM
IFNQDSFLKYLLEHLIRSHYRVSKHITIVRYKDT EELNLTRICYNRDKFKAFVFAWFN
GVSENEKVLDITYKKVSNLI"

gene 100415..101071
/gene="VACA2K117"
CDS 100415..101071
/gene="VACA2K117"
/function="uracil-DNA glycosylase interacts with

A20R:
essential for DNA replication"
/note="similar to VACWR109, VACCP-D4R"
/codon_start=1

/translation="MNSVTVSHAPYTITYHDDWEPVMSQLVEFYNEVASWLLRDETSP
IPDKFFIQLKQPLRNKRVCGIDPYPKDGTVPFESPNTKKSKEIASSISRLTG
IDYKGYNLNIIDGVI PWNYLSCKLGETKSHAIYWDKISKLLLQHITKHVSVLYCLGK
TDFSNIRAKLESPVTTIVGYHPAARDRQFEKDRSFEIINVLLLELDNKAPINWAQGFY
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gene 101103..103460
/gene="VACA2K118"
CDS 101103..103460
/gene="VACA2K118"

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for DNA
    /function="NTPase interacts with A20R: essential
    replication"
    /note="similar to VACWR110, VACCP-D5R"
    /codon_start=1

/translation="MDATIRGNDVIFVLKTIGVPSACRQNEPRFVEAFKCDELKRYI
ENNPECTLFESLRDEEAYSIVRIFMDVDLDACLDEIDYLTAIQDFIIEVSNVCVARFAF
TECGAIHENVIKSMRSNFSLTSTNRDKTSFHIIFLDYTTMDTLIAMKRTLLELSRS
SENPLTRSIDTAVYRRKTTLRVVGTRKNPNCDTIHVMQPPHDNIEDYLFYVDMNNNS
YYFSLQRRLEDLVPDKLWEPGFISFEDAIRVSKIFINSIINFNDLDENNFTTVPLVI
DYVTPCALCKKRSHKHPHQLSLENGAIRIYKTGNPHSCKVKIVPLDGNKLFNIAQRIL
DTNSVLLTERGDHIVWINNSWKFNSEELITKLILSIRHQLPKEYSSELLCPRKRKTV
EANIRDMLVDSVETDTPDKLPFKNGVLDLVDGMFYSGDNAKKYTCTVSTGFKFDDTK
FVEDSPEMEELMNIINDIQPLTDENKKNRELYEKTLSCLCGATKGCLTFFFGETATG
KSTTKRLLKSAIGDLFVETGQTILTDVLDKGNPFIANMHLKRSVFCSELPDFACSGS
KKIRSDNIKKLTEPCVIGRPCFSNKINNRNHATIIIDTNYKPVFDRIDNALMRRRIAVV
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    gene 103501..105414
        /gene="VACA2K119"
    CDS 103501..105414
        /gene="VACA2K119"
        /function="70kDa small subunit of early gene

transcription
    factor VETF"
    /note="similar to VACWR111, VACCP-D6R"
    /codon_start=1

/translation="MNTGIIDLFDNHVDSIPTILPHQLATLDYLVRTIIDENRSVLLF
HIMGSGKTIALLFALVASRFKKVYILVPNINILKIFNYNMGVAMNLFNDKFIAENIF
IHSTTSFYSLNYNDNVINGLSRYNNSIFIVDEAHNIFGNNTGELMTVIKNKNIKIPF
LLLSGSPITNTPNTLGHIIDLMSEETIDFGEIISRGKKVIQTLLNERGVNVLDLLKG
RISYYEMDPDKDLPTIRYHGRKFLDTRVVYCHMSKQLQERDYMITRRQLCYHEMFDKNMY
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IQTLNGKHFIYFSNSTYGGGLVIKYIMLSNGYSEYNGSQGTNPHEMINKPKTFIVTSK
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ILGRSIRKFSYADISEPVNVYLLAAVYSDFNDEVTSNDYTDQELINVLFPDIKKLLY
LKPKTKETNRIYSILQEMSETYSLPPHSIVKVLLGELVRQFFYNNSRIKYNDSKLLK
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VNFRKEYNVVSSP"
    gene 105441..105926
        /gene="VACA2K120"
    CDS 105441..105926
        /gene="VACA2K120"
        /function="DNA-dependent RNA polymerase subunit

rp18"
    /note="similar to VACWR112, VACCP-D7R"
    /codon_start=1

/translation="MSSFVTNGYLPVLTLEPHELTLDIKTNIRNAVYKTYLHREISGKM
AKKIEIREDVELPLGEIVNNSVVINVPCVITYAYYHVGDIVRGTLNIEDESNVTIQCG
DLICKLSRDSGTVSFSDSKYCFRNGNAYDNGSEVTAVLMEAQQGISSFVFLANIVD
S"
    gene complement(105889..106803)
        /gene="VACA2K121"

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CDS                                complement(105889..106803)
                                   /gene="VACA2K121"
                                   /function="IMV membrane protein binds cell surface
                                   chondroitin: may effect viral entry"
                                   /note="similar to VACWR113, VACCP-D8L"
                                   /codon_start=1

/translation="MPQQLSPINIETKKAISNARLKPLDIHYNESKPTTIQNTGKLV
INFKGGYISGGFLPNEYVLSSLHIYWGKEDDYGNSHLIDVYKYSGEINLVHWNKKKYS
SYEEAKKHDDGLIIISIFLQVLDHKNVYFQKIYNQLDSIRSANTSAPFDSVFYLDNLL
PSKLDYFTYLTGINHSADAVWIIFFTPINIHSDQLSKFRTLLSLSNHEGKPHYITEN
YRNPYKLNDDETVYYSGEIIRAATTSPARENYFMRWLSDLRETCFSYYQKYIEGNKTF
AIIAIVFVFILTALFFMSRRYSREKQN"

gene                                106845..107486
                                   /gene="VACA2K122"
CDS                                106845..107486
                                   /gene="VACA2K122"
                                   /function="contains mutT-like motif of
                                   NTP-phosphohydrolase for DNA repair"
                                   /note="similar to VACWR114, VACCP-D9R"
                                   /codon_start=1

/translation="MGITMDEEVIFETPRELISIKRIKDIPRSKDTHTVFAACITSDGY
PLIGARTSFQAFQAILSQQNSDSIFRVSTKLLRFMYYNELREIFRRLRKGSIINNIDPH
FEELILLGGKLDKKEIKDCLRELKEESDERITVKEFGNVILKLTTRDKLFNKVYIS
YCMACFINQSLLEDLSHTSIYNVEIRIKISLNDKINDKYEYLSYIYNMLVNSK"

gene                                107483..108229
                                   /gene="VACA2K123"
CDS                                107483..108229
                                   /gene="VACA2K123"
                                   /function="contains mutT-like motif of
                                   NTP-phosphohydrolase for DNA repair"
                                   /note="similar to VACWR115, VACCP-D10R"
                                   /codon_start=1

/translation="MNFYRSSIISQIIKYNRRLAKSIICKDDSQIITLTAFVNQCLWC
HKRVSVSAILLTNDNKILVCNRDSFLYSEIIRTRNMFRKKRFLNYSNYLSKQERSI
LSSFFSLYPATADNDRIDAIYPGGIPKRGENVPECLSREIKEEVNIDNSFVFIDTRFF
IHGIIEDTIINKFFEVIFVGRISLTSQIIDTFKSNHEIKDLIFLDPNSGNGLQYEI
AKYALDTAKLKCYGHRGCYYESLKKLTEDD"

gene                                complement(108230..110125)
                                   /gene="VACA2K124"
CDS                                complement(108230..110125)
                                   /gene="VACA2K124"
                                   /function="ATPase, nucleoside triphosphate
                                   phosphohydrolase-I, NPH-I: transcription
elongation,
                                   termination, release factor"
                                   /note="similar to VACWR116, VACCP-D11L"
                                   /codon_start=1

/translation="MSKSHAAYIDYALRRRTTNMPVEMMGTDVVRLKDYQHVFARVFLG
LDSMHSLLLPHETGVGKMTTTVYILKHLKDIYTNWAIILLVKKALIEDPWNMTILRYA
PEITKDCIFINYDDQNFRNKFFTNIKTINSKSRICVIIDECHNFISKSLIKEDGKIRP
TRSVYNFLSKTIALKNHKMICLSATPIVNSVQEFTMLVNLLRPGSLQHQSLEFNKRLV
DEKELVSKLGGLCYIYNNEFSIFDDVEGSASF AKKTVLMRYVNMSKKQEEIYQKAKL

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AEIKTGISSFRILRRMATTFTFDSFPERQNRDPGEYAQEIATLYNDFKNSLRDREFSK
 SALDTFKKGELLKGDASAADISLFTTELKEKSVKFIDVCLGILASHGKCLVFEPFVNQS
 GIEILLLYFKVFGISNIEFSSRTKDTRIKAVAEFNQESNTNGECIKTCVFSSSGGEGI
 SFFSINDIFILDMTWNEASLRQIVGRAIRLNSHVLTPPERRYVNVHFIMARLSNGMPT
 VDEDLFEIIQSKSKEFVQLFRVFKHTSLEWIHANEKDFSPIDNESGWKTLVSRAIDL
 SKKNITNKLIEGTNIWYSNSNRLMSINRGFKGVDGRVYDVGNYLHDMPDNPVIKIHD
 GKLIYIF"

gene complement (110160..111023)
 /gene="VACA2K125"
 CDS complement (110160..111023)
 /gene="VACA2K125"
 /function="small subunit of mRNA capping enzyme:
 transcription termination factor VTF"
 /note="similar to VACWR117, VACCP-D12L"
 /codon_start=1

/translation="MDEIVKNIREGTHVLLPFYETLPELNLSLGKSPLPSLEYGANYF
 LQISRVNDLNRMPDMLKLFTHDIMLPESDLKVEILKINSVKYYGRSTKADAVVAD
 LSARNKLFKRERDAIKSNNHLTENNLISDYKMLTFDVFRLPFDVNEKYCIKPLTL
 FGRGVIDTMRIYCSLFGKVRLLKCVSDSWLKDSAIMVASDVCKKNLDFMSHVKSVTK
 SSSWKDVNSVQFSILNNPVDTEFINKFLEFSNRVYEALYVHSLYSSMTSDSKSIEN
 KHQRRLVKLLL"

gene complement (111054..112709)
 /gene="VACA2K126"
 CDS complement (111054..112709)
 /gene="VACA2K126"
 /function="rifampicin target associates with inner
 surface
 immature virus membrane"
 /note="similar to VACWR118, VACCP-D13L"
 /codon_start=1

/translation="MNNTIINSLIGGDDSIKRSNVFAVDSQIPTLYMPQYISLSGVM
 NDGPDNQAIASFEIRDQYITALNHLVLSLELPVKGMRFGYVPYVGKCYNYVSVSS
 CNGVIWEIEGEELYNNCINNTIALKHSGYSSELNDISIGLTPNDTIKEPSTVYVYIKT
 PFDVEDTFSSLKLSDSKITVTVTFNPVSDIVIRDSSFDFFETNKEFVYVPELSFIGYM
 VKNVQIKPSFIEKPRRIGQINQPTATVTEVHAATSLSVYTKPYYGNTDNKFISYPGY
 SQDEKDYIDAYVSRLDDLVIIVSDGPPTGYPESAIEVEVPEDGIVSIQDADVYVKIDN
 VPDNMSVYLHTNLLMFGTRKNSFIYNISKKFSAITGTYSDATKRTIFAHISHSINIID
 TSIPVSLWTSQRNVYNGDNRSAESKAKDLFINDPFIKGIDFKNKTDIISRLEVRFGND
 VLYSENGPISRIYNELLTKSNNGTRTLTFNFTPKIFFRPTTITANVSRGDKLSVRVV
 YSTMDVNHPIYVQQLVVVCNDLYKVSVDQGVSTKIMGDNN"

gene complement (112733..113185)
 /gene="VACA2K127"
 CDS complement (112733..113185)
 /gene="VACA2K127"
 /function="late gene transcription factor VLTf-2"
 /note="similar to VACWR119, VACCP-A1L"
 /codon_start=1

/translation="MAKRVSPLPDVVISAPKAVFKPAKEEALACILPKYYKSMADVSIK
 TNSVIDKCWFCNQDLVFKPISIEFTKGGVGYFCSKICRDSLASMVKSHVALREEPKI
 SLLPLVFYEDKEKVINTINLLRDKDGVYGSYFKENSQIIDISLRSLL"

gene complement (113206..113880)
 /gene="VACA2K128"
 CDS complement (113206..113880)


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/translation="MNLRLCSGCRHNGIVSEQGYEYCFESVFQKCTKVQKKS NFHV
SNKLIHLRNVLRRLLSHQCSGEIISELLDIMEKNQISTDDVDANFVSSFLKANERINK
KDYKLVFEIINQVKDEKLNLSSTEKINEVVEIFKHLVFFCQENTPSKTINYSFFLDKIF
DITSVTKNLKPQTVKNYTKNNSNQLVWENFLAHMRSKKRVTMVEDYGHEYVFVDERFS
TCSLEV"
    gene                complement (113877..114107)
                        /gene="VACA2K128"
    CDS                  complement (113877..114107)
                        /gene="VACA2K128"
                        /function="S-S bond formation pathway: CxxxC links
                        SH-oxidase E10R and thioredoxin G4L"
                        /note="similar to VACWR120, VACCP-A2L"
                        /codon_start=1

/translation="MSWYEKYNIVLNPPKRCSSACADNLTTLAEDGNHIRAILYSQP
KKLKILQDFLATSRNKMFLYKILDDEIRRVL"
    gene                complement (114122..116056)
                        /gene="VACA2K129"
    CDS                  complement (114122..116056)
                        /gene="VACA2K129"
                        /function="S-S bond formation pathway: CxxxC links
                        SH-oxidase E10R and thioredoxin G4L"
                        /note="similar to VACWR121, VARBSH-A3L/110"
                        /codon_start=1

/translation="MEAVVNSDVFLTSNAGLKSSYTNQTLISLVEDDHIHTSDKSLSCS
VCNSLSKIVDDDFISAGARNQRTKPKRAGNNQSQPIKKDCMVSIDEVASTHDWSTRL
RNDGNIAIKYLTNNKYDTSNFTIQDMLNIMNKLNIVRTNRNELFQLLTHVKSTLNNAS
VSVKCTHPLVLIHSRASPRIGDQLKELDKIYSPSNHHILLSTTRFQSMHFTDMSSSQD
LSFIYRKPEPNYYIHPILMALFGIKLPALENAYVHGDTYSLIQQLYEFRKVKSYNYML
LVNRLTEDNPVITGVSDLISTEIQANMHTMIRKAIMNIRMGIYFCNDDDAVDPHLM
KIIHTGCSQVMTDEEQILASILSIVGFRPTLVSVARPIGYSYDMKLQAAPYIVVNP
KMITTSDSPISINSKDIYSMAFDGNSGRVVFAPPNIGYGRCSGVTHIDPLGTNVMGSA
VHSPVIVNGAMMFYVERRQNKNMFGGECYTGFRSLIDDPIDVSPPEIMLNGIMYRLKS
AVCYKLGDOFFDCGSSDIFLKGHYTILFTENGPMYDPLSVFNPFGARNARLMRALKNQ
YKKLSMDSDDGFYEWLNGDGSVFAASKQQLMNHVANFDDDLLTMEEAMSMISRHCCL
LIYAQDYDQYISARHITELF"
    gene                complement (116109..116954)
                        /gene="VACA2K130"
    CDS                  complement (116109..116954)
                        /gene="VACA2K130"
                        /function="p4b precursor of core protein 4b"
                        /note="similar to VACWR122, VACCP-A3L"
                        /codon_start=1

/translation="MDFFNKFSQGLAESSTPKSSIIYSEEKDPDTKKDEAIEIGLKSQ
ESYYQRLREQLARDNMMAASRQPIQPLQPTIHITPQVPVPTPTPSAPILLPSSTAPT
PKPRQQTNTSSDSNLFDWLSADTDAPASSLLPALTPSNAVQDIISKFNKDQKTTTPP
STQPSQTLPTTTCTQQSDGNISCTTPTVTPPQPPIVATVCTPTPTGGTVCTTAQONPG
ATSQQNLDDMALKDLMSNVERDMHQLQAETNDLVNTNVDAREYTRRAIDQILQLVKGF
ERFQK"
    gene                complement (116109..116954)
                        /gene="VACA2K131"
    CDS                  complement (116109..116954)
                        /gene="VACA2K131"
                        /function="39kDa core protein complexes with core
protein
                        p4a/4a"
                        /note="similar to VACWR123, VACCP-A4L"
                        /codon_start=1

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gene          116992..117486
              /gene="VACA2K132"
CDS           116992..117486
              /gene="VACA2K132"
              /function="DNA-dependent RNA polymerase subunit
rpo19"
              /note="similar to VACWR124, VACCP-A5R"
              /codon_start=1

/translation="MADTDDIIDYESDDLTEYEDDEEEEEEDGESLETSIDIDPKSSYKI
VESASTHIEDAHSNLKHIGNHISALKRRYTRRISLFEIAGIIAESYNLLQRGRPLVVS
EFSDETMKQNMHLHVIIQEIEEGSCPIVIEKNGELLSVNDPDKDGLKFHLDYIIKIWKL
QKRY"
gene          complement(117483..118601)
              /gene="VACA2K133"
CDS           complement(117483..118601)
              /gene="VACA2K133"
              /function="unknown"
              /note="similar to VACWR125, VACCP-A6L"
              /codon_start=1

/translation="MDKLRVLYDEFVTISKDNLERETGLSASDVDMDFDLNIFMTLVP
VLEKKVCAITPTIEDDKIVTMMKYCSYQSFSFWFLKSGAVVKS VYNKLD DVKKEKFVA
TFRDMLLNVTQLISLNSMYTRLRQDTEDIVSDSKKIMEIVSHLRASTTENAA YQVLQQ
NNSFIISTLNLKILSDENYLLKIIAVFDSKLISEKETLNEYKQLYTISSESLVYGIRCV
SNLDISSVQLSNNKYVLFVKKMLPKIILFQNNNDINAQQFANVISKIYTLIYRQLTSNV
DVGCLLTDITIESAKTKISVEKIKQTGINNVQSLIKFISDNKKEYKTIISEEYLSKEDR
IITILQDIVNEHDIKYDNKLLNMRDLIVTFRERYSYKF"
gene          complement(118625..120757)
              /gene="VACA2K134"
CDS           complement(118625..120757)
              /gene="VACA2K134"
              /function="82kDa large subunit of early gene
transcription
              factor VETF"
              /note="similar to VACWR126, VACCP-A7L"
              /codon_start=1

/translation="MRYIVSPQLVLQVGKGQEVERALYLTPYDYIDEKSPIYYFLRSH
LNIQQPEIVKRHILLTLRMTQLKGYLGNLLDIKDDIIYSHKNNLEYSYVDNTIFNPF
VYTQKKTLKND SFLYNVYPGACDFLVIWVARACDTSIPEFGSYEDVDNNI IKFETML
MEVFPQLDL DITVESKFNNIFRTNLKLTGLKKIIQRVQDL DINYKSLLSRYDEHFINM
TGNHFILNDEQLNLSIWDL DGTALSSDGDVTMINNVKLFDTLVSDIDTQMERIKGDI
TYKVHLATPINSRIKLDIETS FIFETATNNILLSSDKKISII LAKNHISIKVKNHIP
NIEKYFTFLVIAINAMFNSVQKSADFTKVETVYWSRICQNTKKNKRKPII INYLDPGM
KKISNNFYRSDEKEVFINDNGIMFTCM DPLGKYNKVGFLNIFHDMRKYCIPCCFLHDQ
SHRSTFSSCVHQIDVEKKIVSPYILNFGKVVTESKMSFLPIIFDAFLNDGMTANMEQD
NKRLKETSGYHIVRCCAGDDIVRLRTTSDIIQFVNEDKNILIVNDMVYFPMNASDIGK
KIHILIQEIVHEVMIVKKKESSDKIDFFPPNYKLLKDLFPKQTIQTPIQSDAGMVLTT
DGFYIDGKLFNEDLSSKYVTFTKNVIASDAVAKYFSPLFKYVISEAKDRFIKTWMINI
MIHMNVDPNNI IPTLEKYYPNSGRAQIN"
gene          120811..121677
              /gene="VACA2K135"
CDS           120811..121677
              /gene="VACA2K135"
              /function="32kDa small subunit of transcription
factor

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VITF-3 used for intermediate gene expression"
/note="similar to VACWR127, VACCP-A8R"
/codon_start=1

/translation="MFEPVPDLNLEASVELGEVNIDQTPMIKENS GFISRSRRLFAH
RSKDDERKLALRFFLQRLYFLDHREIHYLFRCVDAVKDVTITKNNIIVAPYIALLLTI
ASKGCKLTETMIEAFFPELYNEHSKKFKFNSQVSI IQEKLGYQFGNYHVYDFEPYYST
VALAIRDEHSSGIFNIRQESYLVSSLSEITYRFYLINLKSDLVQWSASTGAVINQMVN
TVLITVYEKLQLVIENDSQFTCSLAVESELPIKLLKDRNELFTKFINELKKTSSFKIS
KRDKDTLLKYFT"
    gene                complement(121670..121996)
                        /gene="VACA2K136"
    CDS                 complement(121670..121996)
                        /gene="VACA2K136"
                        /function="IMV membrane protein required for
morphogenesis"
                        /note="similar to VACWR128, VACCP-A9L"
                        /codon_start=1

/translation="MSCYTAILKSVGGIALFQVANGAIDL CRHFFMYFCEQKLRPN SF
WFVVVRAIASMIMYLVLGIALLYISEQDDKKNTN NANTNDSNSNNSNNDKRNESSIN
SNSSPK"
    gene                complement(121997..124672)
                        /gene="VACA2K137"
    CDS                 complement(121997..124672)
                        /gene="VACA2K137"
                        /function="precursor p4a of core protein 4a,
complexes
                        with A4L"
                        /note="similar to VACWR129, VACCP-A10L"
                        /codon_start=1

/translation="MMPIKSIVTLDQLEDSEYLFRI VSTVLP HLC LDYKVC DQLKTTF
VHPFDILLNNSLGSVTKQDELQAAISKLGINYLIDTTSRELKLFNVTLNAGNIDIINT
PINISSETNPIINTHSFYDLPPFTQHLLNIRLTDTEYRARFIGGYIKPDGSDSMDVLA
EKKYPDLNFDNTYLFNILYKDVINAPIKEFKAKIVNGVLSRQDFDNLIGVRQYITAQD
RPRFDDAYNIADAARHYGVNLNTLPLPNVDLTTMPTYKHLIMFEQYFIYTYDRVDIYY
NGNKMLFDDEIMNFCIS MRYQSLIPRLVEFFPDIPVNNNIVLHTRNPQNAAVNVTVTL
PNVQFVDIGRNHKFFINFFNLLAKEQRSTAIKVTKSMFWDGMDYEEYKSKNLQDMMFI
NSTCYVFGLYNHNNTTYCSILSDIISA EKTPIRVCLLPRVVGKTVTNL ISETLKSIS
SMTIREFFPRKDKSIMHIGLSETGFMRFFQLRLMADKPHETA IKEVVMAYVG IKLGDK
GSPYYIRKESYQDFIYLLFASMGFKVTTRRSIMGSNNISIISIRPRVTKQYIVTTLMK
TSCSKNEAEKLITSAFDLLNFMVSVSDFRDYQSYRQYRNYCPRYFYAGSPEGEETIIC
DSEPI SILDRI DTRGIFSAYTINEMMDTDIFSPENKAFKNNLSRFIESGDITGEDIFC
AMPYNILDRIITNAGTCTVSIGDMLDNITTQSDCNMTNEITDMINASLKNTISKDNNM
LVSQALDSVANRSKQTIGDLRQSSCKMALLFKNLVTSIYTIERIFNAKVGDDVKASML
EKYKVFTDISMSLYKDLIAMENLKAMLYIIRRS GCRIDDAQITDDL VKSYSLIRPKI
LSMINYYNEMSRGYFEHMKKNLNM TDGDSVSFDDE"
    gene                124687..125643
                        /gene="VACA2K138"
    CDS                 124687..125643
                        /gene="VACA2K138"
                        /function="unknown"
                        /note="similar to VACWR130, VACCP-A11R"
                        /codon_start=1

/translation="MTTVPVTDIQNDLITEFSEDNYP SNKNYEITLRQMSILTHVMNV

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VDREHNAAVVSSPEEISSQLNEDLFPDDDSPATIIERVQPHTTIIDDTPPPTFRRELL
 ISEQRQREKRFNITVSKNAEAIMESRSMITSMPTQTPSLGVVYDKDKRIQMLEDDEVV
 NLRNQRSNTKSSDNLNFTKILFGKTPYKSTEVNKRIAIVNYANLNGSPLSVEDLDVC
 SEDEIDRIYKTIKQYHESRKRKIIVTNVIIIVINIEQALLKLGFEI KGLSTDITSE
 IIDVEIGDDCDAVASKLGIGNSPVLNIVLFILKIFVKRIKII"

gene complement (125645..126223)
 /gene="VACA2K139"
 CDS complement (125645..126223)
 /gene="VACA2K139"
 /function="core protein"
 /note="similar to VACWR131, VACCP-A12L"
 /codon_start=1

/translation="MADKKNLAVRSSYDDYIETVNKITPQLKNLLAQIGGDAAVKGGN
 NNLNSQTDVITAGACDTKSKSSKCITCKPKSKSSSSSTSTSKGSKNTSGAPKRRTTVTT
 TSYNAMDGQIVQAVTNAGKIVYGTVRDQGQLEVRGMVGEINHDLLGIESVNAGKKKPSK
 KMPTNKKINMSSGMRRQEQINPDDCCLDMGMY"

gene complement (126247..126459)
 /gene="VACA2K140"
 CDS complement (126247..126459)
 /gene="VACA2K140"
 /function="IMV membrane protein"
 /note="similar to VACWR132, VACCP-A13L"
 /codon_start=1

/translation="MIGILLIGICVAVTVAILYALYNKIKNPQNPSPNLNSPPPE
 PRNTKPVNNLEKDHISLYNLVKSSA"

gene complement (126567..126839)
 /gene="VACA2K141"
 CDS complement (126567..126839)
 /gene="VACA2K141"
 /function="phosphorylated IMV membrane protein
 required
 for morphogenesis"
 /note="similar to VACWR133, VACCP-A14L"
 /codon_start=1

/translation="MDMMLMIGNYFSGVLIAGIILLILSCIFAFIDFSKSTSPTRTWK
 VLSIMAFILGIIITVGMLIYSMWGKHCAHRVSGVIHTNHSDISVN"

gene complement (126856..127017)
 /gene="VACA2K142"
 CDS complement (126856..127017)
 /gene="VACA2K142"
 /function="nonessential hydrophobic IV and IMV
 membrane
 protein: deletion attenuates virus virulence"
 /note="similar to VACWR134, VACCP-A14.5L"
 /codon_start=1

/translation="MISNYEPLLLLIVITCCVLLFNFTISSKTKIDIIFAVQTIVFIWF
 IFHFVHSAI"

gene complement (127007..127291)
 /gene="VACA2K143"
 CDS complement (127007..127291)
 /gene="VACA2K143"
 /function="unknown"
 /note="similar to VACWR135, VACCP-A15L"

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/codon_start=1

/translation="MFVDDNSLIISTW PSTLSDSSGRVIVMPDNRSFTTFKEGFKLDE
SIKSILLVNPSSIDLLKIRVYKHRIKWMGDIFVLFEQENIPPPFRLVNDK"
    gene                complement (127275..128411)
                        /gene="VACA2K144"
    CDS                  complement (127275..128411)
                        /gene="VACA2K144"
                        /function="soluble myristylprotein"
                        /note="similar to VACWR136, VACCP-A16L"
                        /codon_start=1

/translation="MGAAVTLNRIKIAPGIADIRDKYMELGFNYPEYNRAVKFAEESY
MYYYETSPGEIKPKFCLIDGMSIDHCSSFIVPEFAKQYVLIHGEPCCSFKFRPGSLIY
YQNEVTPEYIKDLKHATDYIASGQRCHEFIKKDYLLGSDSDSAKCCSKTNTKHCPKIFN
NNYKTEHCDDFMTGFCRNDPGNPNCLEWLRKRKPAMSTYSIDCSKHMDARYCSEFIR
IIRPDYFTFGDTALYVFCNDHKGNRNCWCANYPKSNSGDKYLGPVVCWLHECTDES RD
RKWLYYNQDVQRTCKYVGCTINVNSLAKNSQAELTSNCTRTTSAVGNVHHHPGEPVV
KDKIKLPTWLGAAILTVVISVIFYFISISRPKIKTNDINVRRR"
    gene                complement (128414..129025)
                        /gene="VACA2K145"
    CDS                  complement (128414..129025)
                        /gene="VACA2K145"
                        /function="IMV membrane protein undergoes
phosphorylation
and proteolytic processing: required for
morphogenesis"
                        /note="similar to VACWR137, VACCP-A17L"
                        /codon_start=1

/translation="MSYLRYNNMLDDFSAGAGVLDKDLFTEEQQQSFM PKDGGMMQND
YGGMNDYLGIFKNNDVRTLGLLILFVLALYSPPLISILMIFISSFLLPLTSLVITYCL
VTQMYRGGNGNTVGM SIVCIVAAVIIMAINVFTNSQIFNIISYIILFILFFAYVMNIE
RQDYRRSINVTIPEQYTCNKPYTAGNKVNVDIPTFNSLNTDDY"
    gene                129040..130521
                        /gene="VACA2K146"
    CDS                  129040..130521
                        /gene="VACA2K146"
                        /function="DNA helicase: effects elongation and
transcription"
                        termination of postreplicative viral
                        /note="similar to VACWR138, VACCP-A18R"
                        /codon_start=1

/translation="MSLLKMEYNLYAELKKMTTCGQPLSLFNEDGDFVEVEPGSSFKFL
IPKGFYASPSVKTSLVFETLTTTNDKITSINPTNAPKLYPLQRKV VSEVVSNM RKMIE
SKRPLYITLHLACGFGKTITTCYLMATHGRKTVICVPNKMLIHQWKTQVEAVGLEHKI
SIDGVSSLLKELKTQSPDVLIVVSRHLTND AFCKYINKHYDLFILDESH TYNLMNNTA
VTRFLAYYPPMCMCYFLTATPRPSNRIYCNSI INIAKLSDLKKT IYAVDSFFEPYSTDN
IRHMVKRLDGP SNKYHIYTEKLLSVDEPRNQLILNTLV EEFKSGTINRILVITKLREH
MVL FYKRLLDLFGPEVVFI GDAQNRRT PDMVKS IKELNRFIFVSTLFYSGTGLDIPSL
DSL FICSAVINNMQIEQLLGRICRETELLDRTVYVFPSTSIKEIKYMIGNFVQRIISL
SVDKLGFKQKSYRKHQESDPTSACTTSSREERVLNRIFNSQNR"
    gene                complement (130502..130735)
                        /gene="VACA2K147"
    CDS                  complement (130502..130735)
                        /gene="VACA2K147"

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        /function="unknown"
        /note="similar to VACWR139, VACCP-A19L"
        /codon_start=1

/translation="MDSTNVRSGMKSRKKPKTTVIDDDDDCMTCACQSKLVKISDI
TKVSLDYINTMRGNTLACAACGSSLKLLNDFAS"
    gene                complement (130736..131089)
                        /gene="VACA2K148"
    CDS                  complement (130736..131089)
                        /gene="VACA2K148"
                        /function="unknown"
                        /note="similar to VACWR140, VACCP-A21L"
                        /codon_start=1

/translation="MITLFLILCYFILIFNIIVPAISEKMRRERAAAYVNYKRLNKNFI
CVDDRLFSYNFTTSGIKAKVAVDNKNVSIPCSKINEVNNNNKNVDTLYCDKDRDDIPGF
ARSCYRAYSDLFFTT"
    gene                131088..132368
                        /gene="VACA2K149"
    CDS                  131088..132368
                        /gene="VACA2K149"
                        /function="viral DNA polymerase processivity
factor:
                        interacts with other replication factors"
                        /note="similar to VACWR141, VACCP-A20R"
                        /codon_start=1

/translation="MTSSADLTNLKELLSLYKSLRFSDSAAIEKYNSLVEWGTSTYWK
IGVQKQVANVETSISDYYDEVKNKPFNIDPGYYIFLPVYFGSVFIYSKGKNMVELGSGN
SFQIPDNMRSACNKVLDSNDGIDFLRFVLLNNRWIMEDAISKYQSPVNIFKLASEYGL
NIPKYLEIEIEEDTLFDDELYSIERSFDDKFPKISISYIKLGELRRQVVDFFKFSFM
YIESIKVDRIGDNIFIPSVITKSGKKILVKDVDHLIRSKVREHTFVKVKKKNTFSILY
DYDNGTETRTGEVIKRIIDTIGRDYYVNGKYFSKVGSAGLKQLTNKLDINECATVDEL
VDEINKSGTVKRKIKNQSAFDLSRECLGYPEADFITLVNNMRFKIENCKVVNFNIEN
NCLNPNPSIETIYGNFNQFVSIFNVVTDVKKRLFE"
    gene                132298..132861
                        /gene="VACA2K150"
    CDS                  132298..132861
                        /gene="VACA2K150"
                        /function="palmitoylprotein: Holliday junction
endonuclease: resolves viral DNA concatemers into
unit
                        length genomes"
                        /note="similar to VACWR142, VACCP-A22R"
                        /codon_start=1

/translation="METLTSSSQSLMSSPMSKKDYSSEIICAFDIGAKNPARTVLEVK
DNSVRVLDISKLDWSSDWERRIAKDLSQYETTLLERQPRRSPYVKFIYFIKGLYH
TSAAKVICVSPVMSGNSYDRKRKRSVEAFLDWMDTFGLRDSVPDRRKLDDVADSFNLA
MRYVLDKWNNTNYPYNRCKSRNYIKKM"
    gene                132881..134029
                        /gene="VACA2K151"
    CDS                  132881..134029
                        /gene="VACA2K151"
                        /function="45kDa large subunit of intermediate
gene
                        transcription factor VITF-3"

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/translation="MDNLFTFLHEIEDRYARTIFNFHFLISCDEIGDIYGLMKERISSE
DMFDNIVYNKDIHHAIKKLVYCDIQLTKHIINQNTYPVFNDSSQVKCHYFDINSDNS
NISSRTVEIFEREKSSLVSYIKTNNKKRVNYGEIKKTVHGGTNANYFSGKKSDEYLS
TTVRSNINQPWIKTISKMRVDIINHSIVTRGKSSILQTIETFTNRTCVKIFKDMSTM
HIILSKDKDEKGCIIHMDKLFYVYNNLFLLFEDI IQNEYFKEVANVVNVHLTATALDE
KLFLIKKMAEHDVYGVSNFKIGMFNLTFIKSLDHTVFPSSLDEDSKIKFFKGKKNIV
ALRSLEDCIN YVTKSENMIEMKERSTILNSIDIETESVDRLKELLLK"
    gene      134026..137520
              /gene="VACA2K152"
    CDS       134026..137520
              /gene="VACA2K152"
              /function="DNA-dependent RNA polymerase subunit

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rpo132"

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/note="similar to VACWR144, VACCP-A24R"  
/codon start=1
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/translation="MKKNTDSEMDQRLGYKFLVPDPKAGVYRPLPHFQYVSYSNFILH
RLHEILTVKRPLLSFKNTERIMIEISNVKVTTPDYSPIIASIKGKSYDALATFTVNI
FKEVMTKEGISITKISSYEGKDSHLIKIPLLLIGYGNKNPLDTAKYLVPNVIGGVFINK
QSVEKVGINLVEKITTWPKFRVVKPNSFTFSFSSVSPPNVLPTRYRHYKISLDISQLE
ALNISSTKTFITVNI VLLSQYLSRVSLFIRRSLSYDMPPEVVYLVNAIIDS AKRITE
SITDFNIDTYINDLVEAEHIKQKSQLTINEFKYEMLHNFLPHMNYTPDQLKG FYMISL
LRKFLYCIYHTSRYPDRDSMVCHRILTYGKYFETLAHDELENYIGNIRNDIMNNHKNR
GTAVNIHVLTTPLGNHAFSSLLSGKFKKSDGSYRTHPHYSWMQNISIPRSVGFYPDQ
VKISKMFSVRKYHPSQYLYFCSSDVPERGPQVGLVSQLSVLSSITNILTSEYLDLEKK
ICEYIRSYYKDDISYFETGFPIT IENALVASLNPNMICDFVTD FRRRKRMGFFGNLEV
GITLVRDHMEQIRINIGAGRLVRPFLVVDNGELMMDVCPESLESLDDMTFSDIQKEFP
HVIEVDIEQFTFSNVCESVQKFRMMSKDERKQYDLCDFPAEFRDGYVASSLVGINHN
SGPRAILGCAQAKQAISCLSSDIRNKIDNGIHLMYPERPIVSKALETYSKIAANGCFGQ
HVTIALMSYKGINQEDGIIKKQFIQRGGLDIVTAKKHQVEIPL ENFNKKERDRSNAY
SKLESNGLVRLNAFLES GDAMARNISSRTLEDDFARDNQISFDVSEKYTDMYKSRVER
VQVELTDKVKVRVLTMKERRPILGDKFTTRTSQKGT VAYVADETEL PYDENGITPDVI
INSTSIFSRKTISMLIEVILTAAYS AKPYNNKGENRPVCFPSSNETSIDTYMQFAKQC
YEHSNPKLSDEELSDKIFCEKILYDPETDKPYASKVFFGPIYYLRLRLH LTQDKATVRC
RGKKT KLIRQANEGRKRGGGIKFGEMERDCLIAHGAANTITEVLKDSEEDYQDVYVCE
NCGDIAAQIKGINTCLRCSKLNLSPLLTKIDTTHVSKVFLTQMNARGVKVKLDFERRP
PSFYKPLDKVDLKPSFLV"

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protein"

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/note="similar to VACWR145, 1284aa CPXVBR-V152,  
VACCP-A25L"  
/codon start=1
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/translation="MSNQNIPQLSEYQTSVSQVAVTPPPKPEPQIFEYQTSDSIVNN  
PRPFYNSDLEFDDIDMYLLPN"
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gene      complement (137691..138155)
          /gene="VACA2K154"
CDS       complement (137691..138155)
          /gene="VACA2K154"
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protein"
    /function="gene fragment, cowpox A-type inclusion
    /note="similar to VACWR146, 1284aa CPXVBR-V152,
    VACCP-A26L"
    /codon_start=1

/translation="METIKALEKFMEFDRLQKDCSDKLDRERERRMKAEREIARKNCG
GNPCERELKSERSNVKRLEYQLDAEKEKVKFYKRELERDRYLSSRYLTSSSDPHEKPL
PNYTFPRIKNVSPLTTEATGSVEVAPPSTDVTEPISDVTPSVDVEPEHPPAF"
    gene        complement(138427..139110)
                /gene="VACA2K155"
    CDS          complement(138427..139110)
                /gene="VACA2K155"
    /function="gene fragment, cowpox A-type inclusion
protein"
    /note="similar to VACWR147, 1284aa CPXVBR-V152"
    /codon_start=1

/translation="MKPMPKQREMRRLDRISDIERQLSDCRRNNESENADMEREMQRL
RDRIMDLDRQLNECKRNGNGASSEEVNRLKTRIDRLERSLEICSKDESELYSAYKTKL
GRAREQISNLQESLRRERESDKTDSYRRELTRERNKIVELEKELNKCDAKYIDEIN
SKKTRISDLERQLAACKSNGGSNGNMDQYKREIESLKRELAECRRGNNGSHSDCKYYD
EEARDCVKS"
    gene        complement(139070..141235)
                /gene="VACA2K156"
    CDS          complement(139070..141235)
                /gene="VACA2K156"
    /function="gene fragment, cowpox A-type inclusion
protein"
    /note="similar to VACWR148, 1284aa CPXVBR-V152"
    /codon_start=1

/translation="MEVTNLIIEKCTKHSKDFATEVEKLNDELSSSEGLSRKTRNVIR
NILRDITKSLTTDKKSKCFRILERSTINGEQIKDVYKTIFFNNGVDVESRINTTGKYVL
FTVMTYVAAELRLIKSDEIFALLSRFFNMICDIHRKYGCGNMFVGIPAALIILLEIDH
INKLFSVFSTRYDAKTYLYTEYFLFLNINHYLLSGSDLFINVAYGAVSFSSPISVPDY
IMEALTFKACDHIMKSGDLKYTYAFTKKVKDLFNTKSDSVYQYVRLHEMSYDGVSEDT
DDDDEVFAILNLSIDSSVDYRNRVLLLTPEVASLRKEYSEVEPDYKYLMDDEVPAYD
KHLPKPITNTGIEEPHATGGDEDQPIKVVHPPNNDKDDAIKPNPLEDPNYVPTITRT
AIGIADYQLVINKLIEWLDKCEEECGNSGEFKTELEEAQRKLTELNAELSDKLSKIRT
LERDSVYKTERIDRLTKEIKEHRDIQNGTDDGSDLLEIDKKTIRELRESLDREREMRS
ELEKELDTIRNGKVDGSCQRELELSRMWLKQRDDDLRAEIDKRRNVEWELSRLRRDIK
ECDKYKEDLDKAKTNISNYVSKISTLESEIAKYQQDRDTLSVVRRELEEEERRRVRLD
ECTRNOEDTQEVDAALRSRIRELENKLTDCIESGGGNLTEISRLQSKISDLERQLSECR
ENATEISRLQSRISDLERQLNDCRRNNETNAETERDATS"
    gene        complement(141280..142782)
                /gene="VACA2K157"
    CDS          complement(141280..142782)
                /gene="VACA2K157"
    /function="gene fragment, cowpox A-type inclusion
protein"
    /note="similar to VACWR149, 1284aa CPXVBR-V152"
    /codon_start=1

/translation="MANIINLWNGIVPTVQDVNVASITAFKSMIDETWDKKIEANTCI
SRKHRNIIHEVIRDFMKAYPKMDENKKSPLGAPMWLTQYYILKNEYHKTMLAYDNCS

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LNTKFKTLNIYMITNVGQYILYIVFCIISGKNHDGTPYIYDSEITSNDKNLINERIKY
ACKQILHGQLTIALRIRNKFMEFIGSPMYLWFNVNGSQVYHDIYDRNAGFHNKEIGRLL
YAFMYYLSISGRFLNDFALLKFTYLGESWTFSLSVPEYILYGLGYSVFDTIEKFSNDA
ILVYIRTNNRNGYDYVEFNKKGIKVTEAKPDNDKRIHAIRLINDSSDVQHIHFGFRN
MVIIDNECANIQSSAENATDTGHHQDSKINIEVEDDVIDDDYNPKPTPIPEPHPRPP
FPRHEYHKRPKLLPVEEPDPVKKDADRIRLDNHILNTLDHNLNFIGHYCCDTAAVDRL
EHHIETLGQYAVILARKINMQTLLFPWPLPTVHPHAIDGSIPPHGRSTIL"
    gene                complement (142832..143164)
                        /gene="VACA2K158"
    CDS                  complement (142832..143164)
                        /gene="VACA2K158"
                        /function="IMV surface protein: roles in IMV-cell
                        attachment, fusion, and microtubule transport"
                        /note="similar to VACWR150, VACCP-A27L"
                        /codon_start=1

/translation="MDGTLFPGDDDLAIPATEFFSTKAAKKPEAKREAIVKADEDDNE
ETLKQRLTNLEKKITNVTTKFEQIEKCKRNDENVLFRLENHAETLRAAMISLAKKIDV
QTGRRPYE"
    gene                complement (143165..143605)
                        /gene="VACA2K159"
    CDS                  complement (143165..143605)
                        /gene="VACA2K159"
                        /function="unknown, putative signal peptide"
                        /note="similar to VACWR151, VACCP-A28L"
                        /codon_start=1

/translation="MNSLSIFFIVVATAAVCLLFIQGYSIYENYGNIKEFNATHAAFE
YKSIGGTPALDRRVQDVNDTISDVKQKWRCVVYPGNQGFVSASIFGFQAEVGPNNTRS
IRKFNTMQQCIDFTFSDVINIDIYNPCVVPNNINNAECQFLKSVL"
    gene                complement (143606..144523)
                        /gene="VACA2K160"
    CDS                  complement (143606..144523)
                        /gene="VACA2K160"
                        /function="DNA-dependent RNA polymerase rpo35"
                        /note="similar to VACWR152, VACCP-A29L"
                        /codon_start=1

/translation="MQHPRENSIVVELEPSLATFIKQGFNNLVKWPLLNIGIVLSNT
STAVNEEWITAVEHIPMTKIFYKHIHKILTREMGLVYLKRSQSERDNYITLYDFDY
IIDKDTNSVTMVDKPTTELKETLLHVFQEYRLKSSQTIELIAFSSGTVINEDIVSKLTF
LDVEVFNRREYNNVKTIIDPDFVSRSPFIVISPMGKLTFFVEVYSWFDFKSCFKDIIDF
LEGALIANIHNMHIKVGNCDETVSSYNPESGMLFVNDLMTMNIVNFFGCNSRLESYHR
FDMTKVDVELFIKALSACKKILSASNRL"
    gene                complement (144486..144719)
                        /gene="VACA2K161"
    CDS                  complement (144486..144719)
                        /gene="VACA2K161"
                        /function="IMV protein for association of dense
viroplasm
                        with viral membranes during morphogenesis"
                        /note="similar to VACWR153, VACCP-A30L"
                        /codon_start=1

/translation="MEDLNEANFSHLLINLSNNKDIDAQYASTLSVVHELLSAINFKI
FNINKKSKKNSKSIEQHPVVHHAASAGREFNRR"

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gene 144879..145253
 /gene="VACA2K162"
 CDS 144879..145253
 /gene="VACA2K162"
 /function="unknown"
 /note="similar to VACWR154, VACCP-A31R"
 /codon_start=1

 /translation="MASILNLTRLFLEKTSFYNCNDSITKEKIKIKHKGMSFVFYKPKH
 STVVKYLSGGGIYHDDLVLGKVTINDLKMLLFYMDLSYHGVTS SGA IYKLGSSIDRL
 SLNRTIVTKVNNYDDTFFDDDD"
 gene complement(145220..146032)
 /gene="VACA2K163"
 CDS complement(145220..146032)
 /gene="VACA2K163"
 /function="putative ATPase involved in DNA
 packaging"
 /note="similar to VACWR155, VACCP-A32L"
 /codon_start=1

 /translation="MNCFQEKQFSRENLLKMPFRMVL TGGSGSGKTIYLLSLFSTLVK
 KYKHIFLFTPVYNPDYDGYIWPNHINFVSSQEALEYNLIRTKS NIEKCI AVAQNHKKS
 AHFLLI FDDVGDKLSKCNLTIEFLNFRHLNTS IILLCQTYRHVPILGRANITHFCSF
 NISISDAENMLRSMPVKGKRKDILNMLNMIQTARSNNRLAIIIEDSVFCEGELRICTD
 TADKDVIEQKLNIDILVNQYSHMKKNLNTILESTKTKLCNSDQSSSSKNVSS"
 gene 146150..146707
 /gene="VACA2K164"
 CDS 146150..146707
 /gene="VACA2K164"
 /function="EEV membrane phosphoglycoprotein
 associates
 with A36R: involved in CEV-cell adherence and
 actin tail
 formation"
 /note="similar to VACWR156, VACCP-A33R"
 /codon_start=1

 /translation="MMTPENDEEQTSVFSATVYGDKIQ GK NKRKR VIGLCIRISMVIS
 LLSMITMSAFLIVRLNQCMSANEAAITDA AVAVAAASSTHRKVASSTQYDHKESCNG
 LYYQGSCYILHSDYQLFSDAKANCTAESSTLPNKSDVLITWLIDYVEDTWGSDGNPIT
 KTTSDYQSDVSQEV RKYFCVKT MN"
 gene 146731..147237
 /gene="VACA2K165"
 CDS 146731..147237
 /gene="VACA2K165"
 /function="EEV glycoprotein involved in CEV cell
 adherence
 and actin tail formation"
 /note="similar to VACWR157, VACCP-A34R"
 /codon_start=1

 /translation="MKSLNRQTVSRFKKLSVPAAIMMILSTIISGIGTFLHYKEELMP
 SACANGW IQYDKHCYLD TN IKMSTDNAVYQCRKLRLRPDTRHLRVLF SIFYKDYW
 VSLKKTNNKWL DINNDKDIDISKLTNFKQLNSTTDAEACIYKSGKLVKTVCKSTQSV
 LCVKKFYK"
 gene 147281..147811
 /gene="VACA2K166"

CDS 147281..147811
 /gene="VACA2K166"
 /function="unknown"
 /note="similar to VACWR158, VACCP-A35R"
 /codon_start=1

 /translation="MDAAFVITPMGVLTTITDTLYDDLDISIMDFIGPYIIGNIKTVQI
 DVRDIKYSDMQKCYFSYKGKIVPQDSNDLARFNIYSICAAAYRSKNTIIACDYDIMLD
 IEDKHQPFYLFPSIDVFNATIEAYNLYTAGDYHLIINPSDNLKMKLSFNSSFCISDG
 NGWIIIDGKCNSNFLS"
 gene 147878..148543
 /gene="VACA2K167"
 CDS 147878..148543
 /gene="VACA2K167"
 /function="IEV transmembrane phosphoprotein
 interacts with A33R and used in actin tail formation"
 /note="similar to VACWR159, VACCP-A36R"
 /codon_start=1

 /translation="MMLVPLITVTVVAGTILVCYILYICRKKIRTVYNDNKIIMTKLK
 KIKSSNSSKSSKSTDSESDWEDHCSAMEQNNDVDNISRNEILDSDSFAGSLIWDNESN
 VMAPSTEHYDSVAGSTLLINDRNEQTIYQNTTVVINETETVKVLNEDTKQNPYSS
 NPFVYNKTSICSKSNPFITELNNKFSENNPFRRAHSDDYLNKQEQDHEHDDIESSV
 SLV"
 gene 148607..149398
 /gene="VACA2K168"
 CDS 148607..149398
 /gene="VACA2K168"
 /function="unknown"
 /note="similar to VACWR160, VACCP-A37R"
 /codon_start=1

 /translation="MEIFPVFGISKISNFIANNDCRYIDTEHQKIISDEINRQMD
 VLLTNILSVEVVNDNEMYHLIPHLSTIILCISSVGGCVISIDNDVNGKNILTFPIDH
 AVIISPLSKCVVSKGPTTILVVKADIPSKRLVTSFTNDILYVNNLSLINYLPLSVFI
 IRRVTDYLDRIHCDQIFANNKWYSIITIDNKQFPPIPSNCIGMSSAKYINSSIEQDTLI
 HVCNLEHPFDLVYKKMQSYNSVPIKEQILYGRIDNINMSISISVY"
 gene 149488..149676
 /gene="VACA2K169"
 CDS 149488..149676
 /gene="VACA2K169"
 /function="unknown"
 /note="similar to VARWR161, VARGAR-A43R-like"
 /codon_start=1

 /translation="MDSFSSLFMKLCCISTDKTGSKKSDKKNKNKIKDYMEHDYKIT
 IVPGSSSTSTSSWYYTHA"
 gene complement(149673..150506)
 /gene="VACA2K170"
 CDS complement(149673..150506)
 /gene="VACA2K170"
 /function="CD47-like putative membrane protein"
 /note="similar to VACWR162, VACCP-A38L"
 /codon_start=1

 /translation="MSRVRISLIYLYTLVVITTTKTIEYTACNDTIIIPCTIDNPTKY

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IRWKLDNHDILTYNKTSKTTILSKWHTSARLHSLSDSDVSLIIEYKDILPGTYTCGDN
TGIKSTVKLVQLHTNWFNDYQTMLMFIFTGITLFLLFLEITYTSSISVVFSTNLGILQV
FGCVIAMIELCGAFLFYPSMFTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVH
LIIYYQLAGYILTVLGLGLSLKECVDGTLILLSGLGTIMVSEHFSLLFLVCFPSTQRDY
Y"

    gene          150523..150921
                  /gene="VACA2K171"
    CDS           150523..150921
                  /gene="VACA2K171"
                  /function="gene fragment, semaphorin-like: intact
protein
host
                  proinflammatory in VAC-mouse skin lesion model:
                  defense modulator"
                  /note="similar to VACWR163, 403aa VACCP-A39L"
                  /codon_start=1

/translation="MIPLLFILFYFANGIEWHKFETSEEIISTYLLDDVLYTGVMGAV
YTFSNNKLNKTGLTNNNYITTSIKVEDADKDTLVCGTNNGNPKCWKIDGSDDPKHRGR
GYAPYSKVTIISYNECVLSDINISKEGIKR"
    gene          151287..151715
                  /gene="VACA2K172"
    CDS           151287..151715
                  /gene="VACA2K172"
                  /function="gene fragment, semaphorin-like: intact
protein
host
                  proinflammatory in VAC-mouse skin lesion model:
                  defense modulator"
                  /note="similar to VACWR164, 403aa VACCP-A39L"
                  /codon_start=1

/translation="MNTIKQSFSTSKLEGYTKQLPSPAPGICLPAGKVVPHTTFFEVIE
KYNVLDDIIKPLSNQPIFEGPSGVKWFEDIKEKENEHREYRIYFIKENSISFDTKTKQ
TRSAQVNAQLFSVMVTAKPLFIADIGIGVGMPQMCKILKM"
    gene          151741..152247
                  /gene="VACA2K173"
    CDS           151741..152247
                  /gene="VACA2K173"
                  /function="C-type lectin-like type-II membrane
protein:
                  deletion attenuates intradermal lesion in VAC-
mouse model:
                  host defense modulator"
                  /note="similar to VACWR165, VACCP-A40R"
                  /codon_start=1

/translation="MNKHKTDYAGYACCVICGLIVGIIFTATLLKVVERKLVHTPSID
KTIKDAYIREDCPDWDWISYNNKCIHLSTDRKTWEEGRNTCKALNPNSDLIKIETPNEL
SFLRSIRRGYWVGESEILNQTPYNFIKATKNGNIFVVRILPNCIRVTLYNNYTT
FLSYHYFG"
    gene          complement (152305..152964)
                  /gene="VACA2K174"
    CDS           complement (152305..152964)
                  /gene="VACA2K174"
                  /function="secreted glycoprotein: deletion causes
more

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mouse

severe lesion and enhanced viral clearance in VAC-

skin model: host defense modulator"

/note="similar to VACWR166, VACCP-A41L"

/codon_start=1

/translation="MYSLLFILMCIPFSFQTVYDDKSVCDSDNKEYMGIEVYVEATL
DEHLRQTTCESEIHKYGASVSNGLNISVDLLNCFNLFHTVGVYTNRD TVYAKFASLD
PWTTEPINSMTHTDDLVLTKCEIVDIYLKCEVDKTKDFMKTNGNRLKPRDFKTVPPSD
VGSMIELQSDYCVNDVTAYVKIYDECGNIKQHSIPTLRDYFTTKNGQPRKILKKKFDN
C"

gene 153129..153530
/gene="VACA2K175"

CDS 153129..153530
/gene="VACA2K175"
/function="profilin-like"
/note="similar to VACWR167, VACCP-A42R"
/codon_start=1

/translation="MAEWHKIIEDISKNNKFEDAAIVDYKTTKNVLAaipnrtfakin
PGEIIPITNRLKPLIGQKYCIVYTNSLMDENTYAMELLTGYAPVSPIVIARTHTA
LIFLMGKPTTSRRDVYRTCRDHATRV RATGN"

gene 153568..154152
/gene="VACA2K176"

CDS 153568..154152
/gene="VACA2K176"
/function="putative type-I membrane glycoprotein"
/note="similar to VACWR168, VACCP-A43R"
/codon_start=1

/translation="MMMWKWIIISILTMSIMPVLAYSSSIFRFHSEDVELCYGHLYFDR
IYNVVNIKYNPHIPYRYNFINRTLTVDELDDNVFFTHGYFLKHKYGSLNPSLIVSLSG
NLKYNDIQCSVNVSLIKNLATSTSTILTSKHKTYSLHRSKCIIIIGYDSIIWYKDIN
DKYNGIYDFTAICMLIASTLIVTIYVFKKIKMNS"

gene complement (154490..155530)
/gene="VACA2K177"

CDS complement (154490..155530)
/gene="VACA2K177"
/function="hydroxysteroid dehydrogenase: deletion
attenuates intradermal lesion in VAC-mouse model:

host

defense modulator"

/note="similar to VACWR170, VACCP-A44L"

/codon_start=1

/translation="MAVYAVTGGAGFLGRYIVKLLISADDVQEIRVIDIVEDPQPITS
KVKVINIYQCDINDFDKVDREALNGVNLIHTAALVDVFGKYTDNEIMKVNYGTQTIL
AACVDLGIKYLIYTSSMEAIGPNKHGDPFIGHEHTLYDISPGHVYAKSKRMAEQLVMK
ANNSVIMNGAKLYTCCLRPTGIYGEDKLTkVFYEQCKQHGNIMYRTVDDNAVHSRVY
VGNAAWMHVLA AKYIQPGSKIKNAYFCYDYSPPSCSYDMFNLLLMKPLGIEQGSRI
RWMLKMYACKNDMKRI LFRKPSLLNNYTLKISNTTFEVRTNNAELDFNYSPIFDVDVA
FERTRKWLEESE"

gene 155577..155954
/gene="VACA2K178"

CDS 155577..155954
/gene="VACA2K178"

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like in                                     /function="inactive Cu-Zn superoxide dismutase-
                                           virion"
                                           /note="similar to VACWR171, VACCP-A45R"
                                           /codon_start=1

/translation="MAVCIINHNDNIRGVIIYFEPVHGKDKVLGSGVIGLKSGTYSLIIHR
YGDISQGCDSIGSPEIFIGNIFVNRYGVAYVYLDTDVNIIFTIIGKALSISKNDQRLAC
GVIGISYINEKIIHFLTINENG"
    gene                155944..156666
                        /gene="VACA2K179"
    CDS                 155944..156666
                        /gene="VACA2K179"
                        /function="Toll/IL1-receptor [TIR]-like:
suppresses              TIR-dependent signal transduction: host defense
modulator"
                        /note="similar to VACWR172, VACCP-A46R"
                        /codon_start=1

/translation="MAFDISVNASKTINALVYFSTQQNKLVIRNEVNDTHYTVEFDRD
KVVDTFISYNRHNDISIEIRGVLPEETNIGCAVNTPVSMTYLYNKYSFKLILAEYIRHR
NTISGNIYSALMTLDDLAIKQYGDIDLLFNEKLKVDSDSGLFDFVNFVKDMICDSRI
VVALSSLVSKHWELTNKKYRCMALAEHISDSIPISELSRLRYNLCKYLRGHTESEDK
FDYFEDDDSSSTCSAVTDRETDV"
    gene                complement (156754..157488)
                        /gene="VACA2K180"
    CDS                 complement (156754..157488)
                        /gene="VACA2K180"
                        /function="unknown"
                        /note="similar to VACWR173, VACCP-A47L"
                        /codon_start=1

/translation="MGNKNIKPSKENRLSILSKDKMDSFKRGSWATSSFREKSRATIQ
RFSSLRREHIKVDHPDKFLELKREIYEIIQKSSSIDVDKRTKLMSNIKTMMINPFMIE
GLMTSLENLDPDNKMSYSSVMILGEFDIINISDNEAAFEFINSLLKSLLLLNTROLKL
LEYSISNDLLYAHINALEYIIKNTFNVPERQLILRGQYLTPIFSDLLKYAGLTIKSNI
LMWNKQFIKPVSDLYTSIRLLYCVTV"
    gene                157587..158201
                        /gene="VACA2K181"
    CDS                 157587..158201
                        /gene="VACA2K181"
                        /function="thymidylate kinase"
                        /note="similar to VACWR174, VACCP-A48R"
                        /codon_start=1

/translation="MSRGALIVFEGLDKSGKTTQCMNIMESIPANTIKYLNFPQIRSTV
TGKMIDDYLTRKKTYNHDHIVNLLFCANRWEFASFIQEQLEQGITLIVDRYAFSGVAYA
AAKGASMTLSKSYESGLPKPDLVIFLESGSKEINRNVGEEIYEDVTFQQKVLQEQYKKM
IEEGDIHWQIISSEFEEDVKKELIKNIVIEAIHTVTGPGVQLWM"
    gene                158249..158737
                        /gene="VACA2K182"
    CDS                 158249..158737
                        /gene="VACA2K182"
                        /function="unknown"
                        /note="similar to VACWR175, VACCP-A49R"
                        /codon_start=1

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/translation="MDEAYYSGNLESVLGYVSDMHTELASISQLVIAKIETIDNDILN
KDIVNFIMCRSNLDNPFISFLDTVYTIIDQEIQTELINSLDDNEIIDCIVNKFMSFY
KDNLENIVDAIITLKYIMNPNDFKTTYAEVLGSRIADIDIKQVIRENILQLSNNIRER
YL"

gene 158769..160427
/gene="VACA2K183"
CDS 158769..160427
/gene="VACA2K183"
/function="DNA ligase"
/note="similar to VACWR176, VACCP-A50R"
/codon_start=1

/translation="MTSFREFRKLCCAIYHASGYKEKSKLIRDFITDRDDKYLIKLL
LPGLDDRIYNMNDKQIIKLYSIFKQSQEDMLQDLGYGYIGDTISTFFKENTEIRPRD
KSILTLEDVDSFLTTLSSVTKEHLQIKLLTDVASVCTCNLDKCVVMLIDKDLKIKAGP
RYVLNAISPHAYDVFRKSNNLKEIIENASKQNLDSSISVMTPIPNMLAESCDSDVNA
FKKFPSCGMFAEVKYDGERVQVHKNNNEFAFFSRNMKPVLSHKVDYLKEYIPKAFKKAT
SIVLDSEIVLVDEHNVPLPFGSLGIHKKKEYKNSNMCLFVFDCLYFDGFDMTDIPLYE
RRSFLKDMVEIPNRIVFSELTNISNESQLTDVLDLALTRKLEGLVLKDINGVYEPGK
RRWLKIKRDYLNESMADSADLVVLGAYYGKGAAGGIMAVFLMGCYDDKSGKWKTVTK
CSGHDDNTLRELQDLKMIKINKDPKKIPEWLNVNKIYIPDFVVEDPKQSQIWEISGA
EFTSSKSHTANGISIRFPRFTRIREDKTWKESTHLNDLVNLTKS"

gene 160480..160689
/gene="VACA2K184"
CDS 160480..160689
/gene="VACA2K184"
/function="gene fragment, unknown"
/note="similar to VACWR177, VACCP-A51R"
/codon_start=1

/translation="MDGVIVYCLNALVKHGEEINHIKNDFMIKPCCEKVKNVHIDGQS
KNNTVIADLPYLDNAVSDVCKSIYI"

gene 160668..161468
/gene="VACA2K185"
CDS 160668..161468
/gene="VACA2K185"
/function="gene fragment, unknown"
/note="similar to VACWR177, VACCP-A51R"
/codon_start=1

/translation="MQIDIYIVSRISRANLIKIDDDDKTPTGVYNYFKPKDAIPVII
SIGKDRDVCELLISSDKACACIELNSYKVAIIPMDVSFFTKGNASLIILLFDFSIDAA
PLLRSVTDNNVIISRHLHDELPSNWFKFYISIKSDYCSILYMVVDGSMHAIADN
RTYANISKNILDNTTINDECRCCYFEPQIRILDRDEMLNGSSCDMNRHCIMMNLDPVG
KFGSSMLGKYEPDMIKIALLVAGNLIRNRDYIPGRRGYSSYYVYGIASR"

gene 161538..162110
/gene="VACA2K186"
CDS 161538..162110
/gene="VACA2K186"
/function="Toll/IL1-receptor [TIR]-like suppresses
TIR-dependent signal transduction: host defense

modulator"

/note="similar to VACWR178, VACCP-A52R"
/codon_start=1

/translation="MDIKIDISIFGDKFTVTTRRENEEKKKYLPLQKEKTTDVIKPDY

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LEYDDLDRDEMFTILEEYFMYRGLGLRIKYGRFLFNEIKKFDNDAAEQFGTIEELKQ
KLRLNSEEGADNFIDYIKVQKQDIVKLTVDYDCISMIGLCACVVDVWRNEKLF SRWKYC
LRAIKLFINDHMLDKIKSILQNLVYVEMS"
    gene                complement(162251..162361)
                        /gene="VACA2K187"
    CDS                 complement(162251..162361)
                        /gene="VACA2K187"
                        /function="unknown"
                        /note="similar to VACCP-A54L"
                        /codon_start=1

/translation="MFKVIRLKYIFEINSCISHPSILDLYVLKNTILLIL"
    gene                162432..162830
                        /gene="VACA2K187"
    CDS                 162432..162830
                        /gene="VACA2K187"
                        /function="gene fragment, secreted TNF-receptor-
like
                        protein: CrmC, intact in some VAC strains: host
defense
                        modulator"
                        /note="similar to VACWR179, VACCP-A53R"
                        /codon_start=1

/translation="MDIKNLLTVCTIFYITTLATADIPTSSLPHAPVNGACDEGEYLD
KRHNQCCNQCPPGEFAKVRCSGSDNTKCEPCPPHTYTAIPNYSNGCHQCRKCPTGSFD
KVKCTGTQNSKCSCLPGWYCATDSSQTEDC"
    gene                163247..164941
                        /gene="VACA2K188"
    CDS                 163247..164941
                        /gene="VACA2K188"
                        /function="kelch-like"
                        /note="similar to VACWR180, VACCP-A55R"
                        /codon_start=1

/translation="MNSSSKLIAVINGFRNSGRFCDINIVINDERINAHKLILSGASE
YFSILFSNNFIDSNEYEVNLSHLDYQSVNDLIDYIYGIPLSLTNDNVKYILSTADFLQ
IGSAITECENYILKNLCSKNCIDFYIYADKYNNKKIESASFNTILQNILRLINDENFK
YLTEESMIKILSDDMLNIKNEDFAPLILIKWLESTQQSCTVELLKCLRISLLSPQVIK
SLYSHQLVSSIYECITFLNNAFLDESFPYHSIELISIGISNSRDKISINCYNHKKN
TWEMISSRRYRCSFAVAVLNIIYMMGGYDQSPYRSSKVIAYNTCTNSWIYDIPELKY
PRSNCGGLADDEYIYCIGGIRDQDSSLTSSIDRWKPSKPYWQKYAKMREPKCDMGVAM
LNGLIYVMGGIVKGDTCDALESLSGDMWKHQR LPIKMSNMSTIVHDGKIYISGGYN
NSSVNVVISNLVLSYNSIYDEWTKLSSLNIPRINPALWSAHNKLYVGGGISDDVQNT
SETYDKEKDCWTLDNHVLPRNYIMYKCEPIKHKYPLEKTQYTNDFLKYLESTFIGS"
    gene                164991..165920
                        /gene="VACA2K189"
    CDS                 164991..165920
                        /gene="VACA2K189"
                        /function="hemagglutinin: EEV: type-I membrane
glycoprotein: inhibits cell fusion"
                        /note="similar to VACWR181, VACCP-A56R"
                        /codon_start=1

/translation="MTRLPILLLLISLVYATPPFPQTSKKIGDDATLSCNRNNTNDYVV
MSAWYKEPNSIILLAAKSDVLYFDNYTKDKISYDSPYDDLVTITITIKSLTARDAGTYV

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CAFFMTSTTNDTDKVDYEEYSTELIVNTDSESTIDIILSGSTHSPETSSEKPDYIDNS
 NCSSVFEIATPEPITDNVEDHTDVTYTSDSINTVSATSGESTTDETPEPITDKEDHT
 VTDTVSYTTVSTSSGI VTTKSTDDTYNDNDTPPTTVGGSTTSISNYKTKDFVEIFG
 ITALIILSAVAIFCITYYICNKRSRKYKTENKV"

gene 166065..166520
 /gene="VACA2K190"
 CDS 166065..166520
 /gene="VACA2K190"
 /function="guanylate kinase"
 /note="similar to VACWR182, VACCP-A57R"
 /codon_start=1

/translation="MEREGVDYHYVNREAIWKGIAAGNFLEHTEFLGNIYGTSKTAVN
 TAAINNRCVMDLNIDGVRSLKNTYLPYSVYIRPTSLKMVETKLRCRNTEANDEIHR
 RVILAKTMDNEAGLFDTIIEDDVNLAISKLIQILQDRIRMYFNTN"

gene 166671..167573
 /gene="VACA2K191"
 CDS 166671..167573
 /gene="VACA2K191"
 /function="ser/thr kinase essential for viral DNA
 replication"
 /note="similar to VACWR183, VACCP-B1R"
 /codon_start=1

/translation="MNFQGLVLTNDNCKNQWVVGPLIGKGGFGSIYTTNDNNYVVKIEP
 KANGSLFTEQAFYTRVLKPSVIEEWKSHNIKHVGLITCKAFGLYKSINVEYRFLVIN
 RLGADLDAVIRANNRNLPKRSVMLIGIEILNTIQFMHEQGYSHGDIKASNIVLDQIDK
 NKLYLVDYGLVSKFMSNGEHVFPFIRNPNKMDNGTLEFTPIDSHKGYVVSRRGDLETLG
 YCMIRWLGILPWTIKISETKNCALVSATKQKYVNNATLLMTSLQYAPRELLQYITMV
 NSLTYFEEPNYDEFRHILMQGVYY"

gene 167663..168322
 /gene="VACA2K192"
 CDS 167663..168322
 /gene="VACA2K192"
 /function="unknown"
 /note="similar to VACWR184, VACCP-B2R"
 /codon_start=1

/translation="MAMFYAHALGGYDENLHAFPGISSTVANDVRKYSVVSVMNNKYD
 IVKDKYMWYCYSQVNKRYIGALLPMFECNEYLQIGDPIHDQEGNQISIITYRHKNYAL
 SGIGYESLDLCLEGVGIHHHVLEAGNAVYGVQHDYSTIKEKAKEMSTLSPGPIIDYH
 VWIGDCICQVTAVDVHGKEIMKMRFKKGAVLPINLVKVKLGENDTENLSSTISAAPS
 R"

gene 168358..168732
 /gene="VACA2K193"
 CDS 168358..168732
 /gene="VACA2K193"
 /function="unknown"
 /note="similar to VACWR185, VACCP-B3R"
 /codon_start=1

/translation="MKRLETIRHMWSVVDYHFNIVNGKECCYVHTHLSNQNLIPSTVK
 TNLYMKTMGSCIQMDSMEALEYLSSELKESGGWSRPPEMQEFYPDGVEDTESIERLAE
 EFFNRSELQAGKSVKFGNSINC"

gene 169385..171061
 /gene="VACA2K194"

CDS 169385..171061
 /gene="VACA2K194"
 /function="ankyrin-like"
 /note="similar to VACWR186, VACCP-B4R"
 /codon_start=1

 /translation="MDFFKKEILDWSIYLSLHYIARVFSNFSSTSHIIQDYNLVRTYEK
 VDKTIVDFLSRLPNLFHILEYGENILHIYSMDANTNIIIFFLDRVLNINKNGSFIHN
 LGLSSSINIKEYVYQLVNNDDHPDNRIRLMLENGRRTRHFLSYISDTVNIYICILINHG
 FYIDAEDSYGCTLLHRCIYHYKKSESESYNELIKILLNNGSDVDKKDTYGNTPFILLC
 KHDINNVELFEICLENANIDSVDNFNRYTPLHYVSCRNKYDFVKLLISKGANVNARNKF
 GTTPFYCGIIHGISLIKLYLESDETELEIDNEHIVRHIIIFDAVESLDYLLSRGVIDIN
 YRTIYNETSIDAVSYNAYNTLVYLLNRRNGDFETITTSCTCISEAVANNKIIMEVL
 LSKRPSLKIMIQSMIAITKHKQHNAADLLKMCIKYTACMTDYDTLIDVQSLQQYKWIIL
 RCFDEIDIMKRCYIKNKTVFQVFCIKDINTLMRYGKHPSFVKCTSLDVYGSVRNII
 ASIRYRQRLISLLSKKLDAGDKWSCFPNEIKYKILENFNDNELSTYLKIL"

 gene 171165..172118
 /gene="VACA2K195"
 CDS 171165..172118
 /gene="VACA2K195"
 /function="EEV type-I membrane glycoprotein:
 required for
 trans-Golgi/endosomal membrane-wrapping of IMV"
 /note="similar to VACWR187, VACCP-B5R"
 /codon_start=1

 /translation="MKTISVVTLLCVLPAVVYSTCTVPTMNNAKLTSTETSFNNNQKV
 TFTCDQGYHSLDPNAVCEQDKWKYENPCKKMCQTVSDYVSELYNKPLYEVNSTMTLSCN
 GETKYFRCEEKNGNTSWNDTVTCPNAECQPLQLEHGSCQPVKEKYSFGEYITINCDVG
 YEVIGASYISCTANSWNVIPSCQQKCDIPSLNGLISGSTFSIGGVIHLSCKSGFILT
 GSPSSSTCIDGKWNPIPTCVRSEKFDVDDGPDDETDLSKLSKDVVQYEQEIESLEA
 TYHIIIVALTIMGVIFLISVIVLVCSCDKNNDQYKFHKLTP"

 gene 172200..172721
 /gene="VACA2K196"
 CDS 172200..172721
 /gene="VACA2K196"
 /function="ankyrin-like"
 /note="similar to VACWR188, VACCP-B6R"
 /codon_start=1

 /translation="MSSSVVDVDIYDAVRAFLLRHYYNKRFFIVYGRSNAILHNIYRLFT
 RCAVIFPDDIVRTMPNESRVKQWVMDTLNGIMMNERDITVCVGTGILFMEMFFDYNNK
 SINNQLMYDIINSVSIILANERYRSAFNDDGIYIRRNMINKLYGYASLTITGTIAGGV
 CYYLLMHLVSLYK"

 gene 172759..173307
 /gene="VACA2K197"
 CDS 172759..173307
 /gene="VACA2K197"
 /function="21kDa precursor protein processed to
 18kDa
 mouse
 membrane protein: deletion reduces lesion in VAC-

 skin model: host defense modulator"
 /note="similar to VACWR189, VACCP-B7R"
 /codon_start=1

 /translation="MYKKLITFLFVIGAVASYSNNEYTPFNKLSVKLYIDGVDNIENS

YTDDNNELVLNFKKEYTISIITESCDVGFDSIDIDVINDYKIIDMYTIDSSTIQRRGHT
CRISTKLSCHYDKYPYIHKYDGDQYSITAEGKCYKGIKYEISMINDDTLLRKHTLK
IGSTYIFDRHGSNTYYSKYDF"

gene 173362..174180
/gene="VACA2K198"

CDS 173362..174180
/gene="VACA2K198"
/function="soluble interferon-gamma receptor-like:

host defense modulator"
/note="similar to VACWR190, VACCP-B8R"
/codon_start=1

/translation="MRYIIILAVLFINSIHAKITSYKFESVNFDSKIEWTGDGLYNIS
LKNYGIKTWQTMVPEGTYDISAPKNDVSVFWVKFEQGDYKVEEYCTGLCVEVKI
GPPTVTLTEYDDHINLYIEHPYATRGSKKIPIYKRGDMCDIYLLYTANFTFGDSKEPV
PYDIDDYDCTSTGCSIDFVTTEKVCVTAQGATEGFLEKITPWSSEVCLTPKKSUYTCA
IRSKEDVPNFKDKMARVIKRFKNQSQSYLTKFLGSTSNDVTTFLSMLNLTKYS"

gene 174267..174500
/gene="VACA2K199"

CDS 174267..174500
/gene="VACA2K199"
/function="6kDa intracellular viral protein has N-

terminal signal sequence"
/note="similar to VACWR191, VACCP-B9R"
/codon_start=1

/translation="MRSIIIVLLFPSIIYSMSIRCEKTEEETWGLKIGLCIIAKDFY
PERTDCSVHLPTASEGLITEGNGFRDIRNTDKL"

gene 174463..174963
/gene="VACA2K200"

CDS 174463..174963
/gene="VACA2K200"
/function="unknown"
/note="similar to VACWR192, VACCP-B10R"
/codon_start=1

/translation="MDSGIYETPINYKKSNSAVSVNNTIFVTGGLFINNSNSTIVVN
NMEKLDIYKDKQWSIIEMPMARVYHGIDSTFGMLYFAGGLSVTEQYGNLEKNNEISCY
NPRTNKWFDISYTIYKISISSLCKLNNVFYVFSKDIGYVEKYDGAWKLVHDRLPAIKA
LSTSPY"

gene 175035..175253
/gene="VACA2K201"

CDS 175035..175253
/gene="VACA2K201"
/function="unknown"
/note="similar to VACWR193, VACCP-11R"
/codon_start=1

/translation="MDTDVTNVEDIINEIDREKEEILKNVEIENKNINKNHPNEYIR
EALVINTSSNSDSIDKEVIECICHVGI"

gene 175320..176171
/gene="VACA2K202"

CDS 175320..176171
/gene="VACA2K202"
/function="ser/thr protein kinase-like"

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/translation="similar to VACWR194, VACCP-B12R"
/codon_start=1

/translation="MESFKYCFDNDGKKWIIGNTLYSGNSILYKVRKNFTSSFYNYVM
KIDHKSHKPLLSEIRFYISVLDPLTIDNWTREIRGIKYLAIPLDYGIGETDDYMFFVIK
NSGRVFAPKDTESVFEACVTMINTLEFIHSRGFTHGKIEPRNIIIRNKRLSLIDYSRT
NKLYKSGNSHIDYNEDMITSGNINYMCVDNHLGATVSKRGDLEMLGYCMIEWFGGKLP
WKNESIKVIKQKKEYKKFIATFFEDCFPEGNEPLELVRYIELVYTLDYSTPNYDRL
RKLFIQD"
gene 176269..176649
/translation="VACA2K203"
CDS 176269..176649
/translation="VACA2K203"
/function="SPI-2/CrmA inhibits Fas-mediated
apoptosis,
IL-1 convertase, lipoxygenase pathway"
/translation="similar to VACWR195, VACCP-B13R"
/codon_start=1

/translation="MDIFREIASSMKGENVFISPASISSVLITILYYGANGSTAEQLSK
YVETEENTDKVSAQNISFKSMNKVYGRYSAVFKDSFLRKIGDKFQTVDFDTCRTIDAI
NKCVDIFTEGKINPLLDEPLSPSN"
gene 176624..177292
/translation="VACA2K204"
CDS 176624..177292
/translation="VACA2K204"
/function="SPI-2/CrmA inhibits Fas-mediated
apoptosis,
IL-1 convertase, lipoxygenase pathway"
/translation="similar to VACWR195, VACCP-B14R"
/codon_start=1

/translation="MNHCLLAISAVYFKAKWLTPEKEFTSDYPPFYVSPTMVDSMM
SMYGAFAFNHASVKESFGNFSIIELPYVGDTSMMVILPDKIDGLESIEQNLTDTNFKKW
CDFMDAMFIDVHIPKFKVTGSYNLVDTLVKSGLTEVFGSTGDYSNMCNSDVSVDAMIH
KTYIDVNEEYTEAAAAATCALVSDCASTITNEFCVDHPFIYVIRHVDGKILFVGRYCSP
TTNC"
gene 177368..177817
/translation="VACA2K205"
CDS 177368..177817
/translation="VACA2K205"
/function="unknown"
/translation="similar to VACWR196, VACCP-B15R"
/codon_start=1

/translation="MTANFSTHVFSPQHCGCDRLTSIDDVKQCLTEYIYWSSYAYRNR
QCAGQLYSTLLSFRDDAELVFIDIRELVKHPWDDVKDCAEIIIRCYIPDEQKTIREIS
AIIGLCAYAATYWGGEHDHPTSNSLNALFVMLEMLNYVDYNIIFRRMN"
gene 177901..178881
/translation="VACA2K206"
CDS 177901..178881
/translation="VACA2K206"
/function="IL-1-beta-inhibitor: prevents febrile
response
in VAC-mouse intranasal model: host defense
modulator"
/translation="similar to VACWR197, VACCP-B16R"

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/codon_start=1

/translation="MSILPIIFLSIFFYSSFVQTFNASECIDKGQYFASFMELENEPV
ILPCPQINTLSSGYNILDILWEKRGADNDRIIPIDNGSNMLILNPTQSDSGIYICITT
NETYCDMMSLNLITIVSVSESNDLISYPQIVNERSTGEMVCPNINAFIASNVNADIW
SGHRRRLRNKRLKQRTPGIITIEDVRKNDAGYYTCVLEYIYGGKTYNVTRIVKLEVRDK
IIPSTMQLPDGIVTSIGSNLTIACRVSLRPPTTDTDFVWISNGMYEEDDGDGNGRIS
VANKIYMTDKRRVITSRLNINPVKEEDATTTFTCMAFTIPSISKTVTVSIT"
    gene                complement (178927..179949)
                        /gene="VACA2K207"
    CDS                  complement (178927..179949)
                        /gene="VACA2K207"
                        /function="unknown"
                        /note="similar to VACWR198, VACCP-B17L"
                        /codon_start=1

/translation="MSRKFMQVVEYDREQYLDEFIEDRYNDSFITSPEYYSAEKYMC
YTTLNHNINCINVRRCALDSKLLHDII TNCKIYNNIELVRATKFVYYLDLIKCNWVSKVG
DSVLYPVIFITHTSTRNLDKVS VKTYKGVKVKLNRCADHAIVINPFVKFKLTLPNKT
SHAKVLVTFCKLRTDITQIEAPLPGNVLVYTFPDINKRIPGYIHVNIEGCIDGMIYIN
SSKFACVLKLRSMYRIPPPPIDICSCCSQYTNDDIEIPIHDLIKDVAIFKNKETVYY
LKLNNKTARFTYFNNIDTAITQEHEYVKIALGIVCKLMINNMHSIVGVNHSNTFVNC
LLEDNV"
    gene                180089..181813
                        /gene="VACA2K208"
    CDS                  180089..181813
                        /gene="VACA2K208"
                        /function="ankyrin-like"
                        /note="similar to VACWR199, VACCP-B18R"
                        /codon_start=1

/translation="MSRRLIYVLNINRESTHKKIQENEIYTYFSHCNIDHTSTELDFVV
KNYDLNRRQPVTGYTALHCYLYNNYFTNDVLKILLNHGVDVTMKTSSGRMPVYILLTR
CCNISHDVVIDMIDKDKNHLSHRDYSNLLLEYIKSRYMLLKEEDIDENIVSTLLDKGI
DPNFKQDGYTALHYYYLCLAHVYKPGECRKPITIKKAKRIISLFIQHGANLNALDNCG
NTPFHLYLSSIEMCNNIHMTKMLLTFFNPFKICNNHGLTPILCYITS DYIQHDILVMLI
HHYETNVGEMPIDERRIIVFEFIKTYSTRPADSITYLMNRFKNINIYTRYEGKTLHLV
ACEYNNTQVIDYLIRINGDINALTDNNKHAIQLIIDNKENSPTYTIDCLLYILRYIVDK
NVIRSLVDQLPSLPFI FNKSFEKFISYCILLDDTFYNRHRNRNSKTYRYAFSKYMSF
DKYDGIITKCHKETILLKLSTVLDTTLYAVLRCHNSKKLRRYLNELKKYNNDKSFKIY
SNIMNERYLNVYYKDMYVSKVYDKLFPVFTDKNCLLTLLPSEIIEILYMLTINDLYN
ISYPPTKV"
    gene                181885..182682
                        /gene="VACA2K209"
    CDS                  181885..182682
                        /gene="VACA2K209"
                        /function="IFN-alpha/beta-receptor-like secreted
glycoprotein: host defense modulator"
                        /note="similar to VACWR200, VACCP-B19R"
                        /codon_start=1

/translation="MTMKMMVHIYFVSLSLLLLLFHSYAIDIENEITEFFNKMRTLP
AKDSKWLNPACMFGGTMMNDMATLGEPPSAKCPPIEDSLLSHRYKDYVVKWERLEKNRR
RQVSNKRVKHGDWLWIANYSKFSNRRYLCTVTTKNGDCVQGI VRSHIRKPPSCIPKTY
ELGTHDKYGIDLYCGILYAKHYNNITWYKDNKEINIDDIKYSQTGKKLI IHNPELED
GRYDCYVHYDDVRIKNDIVSRCKILT VIPSQDHRFKLKRNCGYASN"
    gene                182669..182944

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CDS /gene="VACA2K210"
182669..182944
/gene="VACA2K210"
/function="[ITR] ankyrin-like"
/note="similar to VACWR019, VACCP-C9L"
/codon_start=1

/translation="MRQIKINGTDMLTVMYMLNKPTKKRYVNNPIFTDWANKQYKFYN
QIIYNANKLIEQSKKIDDMIEEVSIDDNRLSTLPLEIRHLIFSAYFL"
gene 183117..183284
/gene="VACA2K211"
CDS 183117..183284
/gene="VACA2K211"
/function="[ITR] unknown"
/note="similar to VACWR018"
/codon_start=1

/translation="MSSKGGSGGMWSVFIHGHDGSNKGSKTYTSGGGGMWGGGSSSGV
NGGVKSGTGKI"
gene 183388..183603
/gene="VACA2K212"
CDS 183388..183603
/gene="VACA2K212"
/function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
host-range"
/note="similar to VACWR017, CPXVBR-V024"
/codon_start=1

/translation="MFDYLENEEVALDELKQMLRDRDPNDTRNQFKNNALHAYLFNEH
CNNVEVVKLLLDSGTNPLRKNWRQLPH"
gene 183625..183858
/gene="VACA2K213"
CDS 183625..183858
/gene="VACA2K213"
/function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
host-range"
/note="similar to VACWR016, CPXVBR-V024"
/codon_start=1

/translation="MLKLKDIAMALLEATGFSNINDFNIFSVMKSKNVDVDLIKVLVE
HGFDSL SVKCNHRSVIENYVMTMILFLKLLICS"
gene 184107..184514
/gene="VACA2K214"
CDS 184107..184514
/gene="VACA2K214"
/function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
host-range"
/note="similar to VACWR015, CPXVBR-V024"
/codon_start=1

/translation="MKGIDNTAYSIDDLTCCTRGIMADYLNSDYRYNKDVDLVKLFL
ENGKPHGIMCSIVPLWRNDKETIFLILKTMNSDVLQHILIEYMTFGDIPLVEYGTVVN
KEAIGHYFRNINIDSYTMKYLLKKEGRCHQLSR"
gene 184603..185031

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CDS /gene="VACA2K215"
184603..185031
/gene="VACA2K215"
/function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
host-range"
/note="similar to VACWR014, CPXVBR-V024"
/codon_start=1

/translation="MSYACPILSTINICLPYLKDINMIDKRGETLLHKAVRYNKQSLV
SLLLESGSDVNIRSNNGYTCIAIAINESKNIELLKMLLCHKPTLDYVIDSLREISNIV
DNYAIAKQCIKYAMIIDDCTSSKIPESISQRYNDYIDLNCN"
gene 185044..185316
/gene="VACA2K216"
CDS 185044..185316
/gene="VACA2K216"
/function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
host-range"
/note="similar to VACWR014, CPXVBR-V024"
/codon_start=1

/translation="MKKIMVGGNTMFSLIPTDHGAKIIHRYANNPELREYYELKQNKI
YVEAYDIIISNAIVKHDRIHKTIESVDDNTYISNLPYTIKYKIFEQQ"
gene 185375..185749
/gene="VACA2K217"
CDS 185375..185749
/gene="VACA2K217"
/function="[ITR] interleukin-18-binding protein:
host
defense modulator: absent from VACCP"
/note="similar to VACWR013/VARBSH-D7L/006"
/codon_start=1

/translation="MRILFLIAFMYGCVHPYVNADEIKCPNLNIVTSSGFEFRCTGCVK
FMPNFSYMYWLAKDMRSDDETKFIEHLGDGIKEDETVRTIDGRIVTLQKVLHVTDTNK
FAHYRFTCVLTTIDGIYKKNVC"
gene complement(185918..186106)
/gene="VACA2K218"
CDS complement(185918..186106)
/gene="VACA2K218"
/function="[ITR] gene fragment, zinc finger-like:
apoptosis: host defense modulator"
/note="similar to VACWR012/207, 242aa VARBSH-
D6R/005"
/codon_start=1

/translation="MKLFTQNDRYFGLLDSCNHIFCITCINIWHKTRRETGASDNCPI
CRTRFRNITMSKFYKLVN"
gene complement(186251..186502)
/gene="VACA2K219"
CDS complement(186251..186502)
/gene="VACA2K219"
/function="[ITR] gene fragment, zinc finger-like:
apoptosis: host defense modulator"
/note="similar to VACWR011/208, 242aa VARBSH-
D6R/005"

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/codon_start=1

/translation="MHYPKYYINITKINPHLANQFRAWKKRIAGRDYMTNLSRDTGIQ
QSKLTETIRNCQKNRNIYGLYIHYNLVINWITDVIINQY"
  gene      187110..188105
            /gene="VACA2K220"
  CDS      187110..188105
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like:
            binds EGF receptor"
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SPI-1:
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gene 192916..194064
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    CDS             195978..196313
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                    /note="similar to VACWR006/213, VACCP-C21L/B27R"
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DKIDSIIIVT"
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    CDS             196677..197045
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                    /function="[ITR] gene fragment, TNF-alpha-
receptor-like:
                    host defense modulator"
                    /note="similar to VACWR004/215, VARBSH-G2R/203"
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IVFSKDHPDARHVFPKQNV"
    gene            196928..197368
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    CDS             196928..197368
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receptor-like:

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host defense modulator"
/note="similar to VACWR002/217, VARBSH-G2R/203"
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gene 197772..198497
      /gene="VACA2K234"
CDS 197772..198497
      /gene="VACA2K234"
      /function="[ITR] chemokine-binding protein: host
defense
modulator"
/note="similar to VACWR001/218, VACCP-C23L/B29R"
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GSASEGATDDTSLIDSTKLKACV"
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